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Minimum
Maximum
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Maximum Match 100%
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1: sp_archea:*

2: sp_bacteria:*

3: sp_fungi:*

4: sp_numan:*

5: sp_invertebrat:

6: sp_mammal:*

7: sp_mhc:*

8: sp_organelle:*

9: sp_phage:*
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1 KSCCRSTLGRNCYN
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ALIGNMENTS

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RESULT 1
Q9TOP1
ID Q9TOP
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DT Q1-)
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SEQUEN
Query Match
Best Local S
Matches 38
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Q9TOP1;
01-MAY-2000 (TrEMBLrel. 13, C:
01-MAY-2000 (TrEMBLrel. 13, L:
01-CCT-2002 (TrEMBLrel. 22, L:
Alpha purothionin precursor.
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NCBI TaxID=4565;
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       38; Conservative
                                               86.5%;
84.4%;
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           Score 224; DB Pred. No. 4.2e 2; Mismatches
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1; Poales; Poaceae; Pooideae;
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.2e-23;
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Best Local S
Matches 37
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A Van Campenhout S., Sagi L., Vander Stappen J., Volckaert G.;

Proceed to type-I thionin loci from the A, B, D and I genomes of wheat and rye.";

Theor. Appl. Genet. 96:80-86(1998).

C -!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TOXIC ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE COMMINANT OF THE PROTEINS WHICH ARE TOXIC PROTEINS IS NOT KNOWN (BY SIMILARITY).

C -!- SIMILARITY: BELONGS TO THE PRECISE FUNCTION, IN PLANTS, OF THE SIMILARITY CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS, OF THE PROTEINS IS NOT KNOWN (BY SIMILARITY).

C -!- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.

R EMBL; X96445; CAA65312.1; -.

R EMBL; X96445; CAA65312.1; -.

R Flam; PF00321; plant thionin.

R PFam; PF00321; plant toxin; Signal; Thionin; Toxin.

R PROSITE; PS00271; THIONIN; 1.

POTENTIAL.

POTENTIAL.
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Q9TOP2;
O1-MAY-2000 (TrEMBLrel. 13, 0)
-MAY-2000 (TrEMBLrel. 13, 1)
O1-OCT-2002 (TrEMBLrel. 22, 1)
Beta purothionin precursor.
PUR-A1.
                                                  SEQUENCE FROM N.A.
STRAIN=cv. Chinese S
Inagaki A., Matsuoka
"Unpublished.";
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SIGNAL
CHAIN
SEQUENCE
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                                                                                                           Q43205;
Q43205;
Q43205;
Q43205;
01-NOV-1996 (TrEMBLrel. 01, Created)
01-NOV-1996 (TrEMBLrel. 01, Last sequence update)
01-MAR-2003 (TrEMBLrel. 23, Last annotation update)
Triticum aestivum (Wheat).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae;
NCBI_TaxID=4565;
[1]
Submitted (APR-1996) to the EMBL/GenBank/DDBJ databases.

-!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TOXIC TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE LEVI OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS, OF THES!
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136 AA;
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                                                     Chinese Spring;
Matsuoka Y., Tsunewaki
d.";
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ilarity 82.2%;
Conservative
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14715 MW;
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POTENTIAL.
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.9e-22;
es 7;
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P. SEQUENCE FROM N.A.

P. SEQUENCE FROM N.A.

CC STRAIN=cv. Petkus;

RA Van Campenhout S., Sagi L., Vander

Van Campenhout S., Sagi L., Vander

RT Genomes of wheat and rye-";

RT Genomes of which and rye-";

RT Genomes of wheat and rye-";

RT Genomes of which and rye-";

RT Genomes of 
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Q9ZNY5;
01-MAY-1999
01-MAY-1999
01-OCT-2002
Purothionin;
PUR-RL.
                                  Q9S9D7
Q9S9D7;
01-MAY-2000
01-MAY-2000
01-OCT-2002
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-!- SIMILARITY: BELONGS TO THE PLANT THIONIN FAW
EMBL; D84390; BAA12336.1; -.

HSSP; P01543; 1BHP.
InterPro; IPR001010; Thionin.
Pfam; PF00321; plant thionins; 1.
PROSITE; PS00271; THIONIN; 1.
PROSITE; PS00271; THIONIN; 1.
Plant defense; Plant toxin; Thionin; Toxin.
Plant defense; Plant toxin; Thionin; Toxin.
SEQUENCE 136 AA; 14542 MW; B4018F414E226B9F
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tra
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poacea
Triticeae; Secale.
CBI_TaxID=4550;
 Thionin.
Hordeum
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36; Conservative
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Pred. No. 6.6e-21;
1; Mismatches 8
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Pred. No. 9.9e-22;
2; Mismatches 6;
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ae; Pooideae;
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SEQUENCE FROM N.A.

P SEQUENCE FROM N.A.

C STRAIN=cv. Apeldoorn;

CA Luyten R.M.J.M., Balk P.A., de Boer A.D.;

CL SUBMITTED (SEP-1994) to the EMBL/GenBank/DDBJ databases.

CL -:- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TOXIC

CC ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE

CC OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS, OF

CC PROTEINS IS NOT KNOWN (BY SIMILARITY).

CC -:- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.

DR HSSP; P01544; 2PLH.

DR InterPro; IPR001010; Thionin.

DR PFAM; PF00321; Plant thionins; 1.

PROSITE; PS00271; THIONIN; 1.

TOWNAIL 1

18 POTENTIAL.

TOWNAIL 1

19356 MW; 91E4CF2B6DD2D7A2 CRC64;
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                                                                                                                             Query Match
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-!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EPIOF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PROTEINS IS NOT KNOWN (BY SIMILARITY).

-!- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY HSSP; P01543; 1BHP.

InterPro; IPR001010; Thionin.

Pfam; PF00321; plant thionins; 1.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.

Plant defense; Plant toxin; Thionin; Toxin.

SEQUENCE 137 AA; 14730 MW; A582052855583646 CRC
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SEQUENCE FROM N.A.
SEQUENCE FROM N.A.
MEDLINE=92167966; PubMed=1371580;
Bunge S., Wolters J., Apel K.;
"A comparison of leaf thionin sequence barley species.";
Canet. 231:460-468(1992)
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Q43226;
Q1-NOV-1996
Q1-NOV-1996
Q1-OCT-2002
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Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae;
Triticeae; Hordeum.
NCBI_TaxID=4513;
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THI1-3.
THI1-3.
Tulipa gesneriana.
Tulipa gesneriana.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Eukaryota; Magnoliophyta; Liliopsida; Liliales; Liliaceae; Tuli
NCBI_TaxID=13306;
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                                                                                                                             h 63.1%;
Similarity 58.7%;
27; Conservative
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in; Signal; Thion....
POTENTIAL.
POTENTIAL.
POTE4CF2B6DD2D7A2 CRC64;

DB 10; Leng
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                                                                                                                          Score 163.5; DB 10
Pred. No. 6.9e-15;
7; Mismatches 11;
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Pred. No. 3.3e-15;
6; Mismatches 12;
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aceae; Pooideae;
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PSEQUENCE FROM N.A.

CC STRAIN=cv. Apeldoorn;

CL Luyten R.M.J.M., Balk P.A., de Boer A.D.;

Luyten R.M.J.M., de Boer A.D.;

Luyten R.M.J.M., ARE SMALL PLANT PROTEINS WHICH ARE TOXIC TO

LIVER TOXIC EFFECT AT THE LEVEL OF THE LEVEL OF THE SECOND TOXIC EFFECT AT THE LEVEL OF THE SECOND TOXIC EFFECT AT THE LEVEL OF THESE TOXIC TOXIC EFFECT AT THE LEVEL OF THESE TOXIC EFFECT AT THE LEVEL OF THESE TOXIC TOXIC EFFECT AT THE LEVEL OF THESE TOXIC EFFECT AT THE LEVEL OF TOXIC EFFECT AT TOXIC EFFECT AT TOXIC
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Best Local S
Matches 27
   Query
Best I
                                                                                                               Schrader-Fischer G., Apel K.;

Plant Mol. Biol. 23:1233-1242(1993).

-!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFORTER IS NOT KNOWN (BY SIMILARITY).

-!- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY HSSP; P01544; 2PLH.

InterPro; IPR001010; Thionin.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.
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Q43225;
Q1-NOV-1996
Q1-NOV-1996
Q1-OCT-2002
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Q9S9A0;
Q1-MAY-2000 (TrEMBLrel. 13, Created)
01-MAY-2000 (TrEMBLrel. 13, Last sequence update)
01-OCT-2002 (TrEMBLrel. 22, Last annotation update)
Thionin.
Viscum album (European mistletoe).
Sukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Epermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Santalaes; Viscaceae; Viscum.
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Liliales; I
NCBI_TaxID=13306;
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Pred. No. 7.3e-15;
7; Mismatches 11;
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IN PLANTS, OF THESE
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aceae; Tulipa.
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Ohashi Y.;

"Enhanced Resistance to Seed-Transgenic Rice Plants Overproducing ar Transgenic Microbe Interact. 15:515-52!

MOI. Plant Microbe Interact. 15:515-52!

EMBL; AB072338; BAB93112.1; -.

InterPro; IPR001010; Thionin.

R Pfam; PF00321; plant thionins; 1.

R PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.
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Best Local :
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Q8LT03;
Q1-OCT-2002 (TrEMBLrel.
01-OCT-2002 (TrEMBLrel.
01-MAR-2003 (TrEMBLrel.
Leaf thionin Asthil.
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Q8LT02;
01-OCT-2002
01-OCT-2002
01-MAR-2003
                                                                                                                                                                                                                                                                                                                                                                                                     SEQUENCE FROM N.A.
STRAIN=cv. Zensin;
MEDLINE=22054133; P
Iwai T., Kaku H., H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Transgenic Rice Plants Overproducing an Oat C Mol. Plant Microbe Interact. 15:515-521(2002) EMBL; AB072339; BAB93113.1; -.
InterPro; IPR001010; Thionin.
Pfam; PF00321; plant thionins; 1.
PROSITE; PS00271; THIONIN; 1.
SEQUENCE 137 AA; 14795 MW; 53CB63A48A5DDB
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   ASTHI2.
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Eukaryota; Viridiplantae; Stre
Spermatophyta; Magnoliophyta;
Aveneae; Avena.
NCBI_TaxID=4498;
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STRAIN=cv. Zensin;
MEDLINE=22054133; PubMed=12059099;
Iwai T., Kaku H., Honkura R., Naka
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Ohashi Y.;
"Enhanced Resistance
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae;
Aveneae; Avena.
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25; Conservative
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Honkura R., Naka
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/ta; Liliopsida; Poales; Poaceae; Pooidea
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Pred. No. 5.7e-14;
7; Mismatches 13;
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DT Q1-NC
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PSEQUENCE FROM N.A.

A Holtorf S., Schuetz C., Apel K., Bohlmann H.;

HA Holtorf S., Schuetz C., Apel K., Bohlmann H.;

HA Holtorf S., Schuetz C., Apel K., Bohlmann H.;

HA Holtorf S., Schuetz C., Apel K., Bohlmann H.;

HA Holtorf S., Schuetz C., Apel K., Bohlmann H.;

HA Holtorf S., Schuetz C., Apel K., Bohlmann H.;

HA Holtorf S., Schuetz C., Apel K., Bohlmann H.;

"Specific and distinct expression patterns of two members of the transgenic tobacco.";

It is until defense, the pression patterns of two members of the transgenic tobacco.";

Submitted (MAR-1996) to the EMBL/GenBank/DoBJ databases.

HIC FUNCTION: THEOVIC TO THE PROTEINS WHICH ARE TOXIC TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE LEVEL OF THESE PROTEINS IS NOT KNOWN (BY SIMILARITY).

HE PROTEINS IS NOT KNOWN (BY SIMILARITY).

HE PROTEINS IS NOT KNOWN (BY SIMILARITY).

HE PLANT THIONIN FAMILY.

HESSE PO1543; 18HP.

HESSP; P01543; 18HP.

HESSP; P01543; 18HP.

HESSP; P01543; 18HP.

HESSP; P00321; plant thionins; 1.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.
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Q42838;
Q1-NOV-1996
Q1-NOV-1996
Q1-OCT-2002
                                                                                                                                                                                                                                                                                                                                                                   Q43227
Q43227;
Q1-NOV-1996
Q1-NOV-1996
Q1-OCT-2002
STRAIN=cv. Apeldoorn;
Luyten R.M.J.M., Balk P.A., de Boer A.D.;
Submitted (SEP-1994) to the EMBL/GenBank/DDBJ databases
-!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH AI
ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT
OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANT
                                                                                                                                                                                         Thionin class 1 precursor (Fragment).
THI1-4.
THI1-4.
Tulipa gesneriana.
Tulipa gesneriana.
Eukaryota; Viridiplantae; Streptophyta; Embryophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Liliales; I
NCBI_TaxID=13306;
[1]
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Triticeae; Hordeum.
NCBI_TaxID=4513;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Hordeum vulgare (Barley).
Eukaryota; Viridiplantae; Streptophyta; En
Spermatophyta; Magnoliophyta; Liliopsida;
                                                                                                                                                                    SEQUENCE FROM N.A.
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24; Conserv
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KSCCKDIMARNCYNVCRIPGTPRPVCATTCRCKIISGNKCPKDYPK
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illarity 52.2%;
Conservative
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Pred.
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Pred. No. 2.5e-12;
s; Mismatches 15;
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a; Poales; Poa
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              THE TOXIC TO FECT AT THE LEVEL PLANTS, OF THESE
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iaceae; Tulipa.
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ae; Pooideae;
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Best Loc
Matches
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-!- SIMILARITY: BELONGS TO THE PLAN
EMBL; X81709; CAA57353.1; -.
HSSP; P01542; 1CBN.
InterPro; IPR001010; Thionin.
Pfam; PF00321; plant thionins; 1.
PROSITE; PS00271; THIONIN; 1.
Plant defense; Plant toxin; Signal;
NON TER
1 1 POTENT
SIGNAL 1 1 1 POTENT
                                                                                                                                                                                                                                                                                                   SEQUENCE FROM N.A.
STRAIN=cv. Zensin;
MEDLINE=22054133; Pi
Iwai T., Kaku H., Hi
Ohashi Y.;
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Q8LT00;
01-OCT-2002 (TrE
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01-MAR-2003 (TrE
Thionin Asthi4.
ASTHI4.
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Q43224;
Q1-NOV-1996 (TI
01-NOV-1996 (TI
01-OCT-2002 (TI
Thionin class I
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NCBI_TaxID=4498;
                                                                                                                                                                                                                             Transgenic Rice Plants Overproducing an Oat Cell-Wall-Bound Mol. Plant Microbe Interact. 15:515-521(2002).

EMBL; AB072341; BAB93115.1; -.

InterPro; IPR001010; Thionin.

Pfam; PF00321; plant thionins; 1.

SEQUENCE 142 AA; 15009 MW; 13CF1E57F5B94AAB CRC64.
            THI1-1.
Tulipa gesneriana.
Tulipa gesneriana.
Eukaryota; Viridiplantae; Streptophyta; En
Spermatophyta; Magnoliophyta; Liliopsida;
NCBI_TaxID=13306;
[1]
                                                                                                                                                                                                                                                                                                                                                                               Avena sativa (Oat).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae;
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Similarity 54.3%;
25; Conservative
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Similarity 52.2%;
24; Conservative
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112 AA;
                                                               (TrEMBLrel. (TrEMBLrel. (TrEMBLrel.
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N.A
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Honkura R., Nakamura
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11863 MW;
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                                                                                                                                                                                               Score 143.5; DB 10
Pred. No. 4.9e-12;
7; Mismatches 13;
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a; Liliales; I
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Liliaceae; Tul
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Luyten R.M.J.M., Interest Control of the EMBL/GenBank P.A. THE CALL THEOLING FOR P.C., IPRO1010; Thionin.
Luyten R.M.J.M., DESTRUCTION, IN PLANTS, OF THESE C.L., P.C., IPRO1010; Thionin.
Luyten R.M.J.M., DESTRUCTION, IN PLANTS, OF THESE C.L., P.C., IPRO1010; Thionin.
Luyten R.M.J.M., DESTRUCTION, IN PLANTS, OF THESE C.L., P.C., INTEREST C.L., 
                                                                                                                                      Query Match
Best Local S
Matches 23
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Best Local S
Matches 25
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Q8H0Q5;
01-MAR-2003
01-MAR-2003
01-MAR-2003
                                                                                                                                                                                                                                                                            SEQUENCE FROM N.A.

STRAIN=cv. Manchuria; TISSUE=Leaf;

Kah B., Kogel K.H., Langen G.;

"ORF of a leaf expressed barley thionin.";

Submitted (SEP-2002) to the EMBL/GenBank/DDBJ

EMBL; AJ508712; CAD48489.1; -.

SEQUENCE 137 AA; 14615 MW; 752F0489A4FEDC4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Hordeum vulgare (Barley).
Eukaryota; Viridiplantae; Stro
Spermatophyta; Magnoliophyta;
Triticeae; Hordeum.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 NCBI_TaxID=4513;
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Similarity 54.3%;
25; Conservative
                                                                                                                                      1 54.2%;
Similarity 50.0%;
23; Conservative
                               KSCCRSTLGRNCYNLCRVRGAQX-LCAGVCRCKLTSSGKCPTGFPK
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CYNACHFAGGSRPV
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/ta; Liliopsida; Poales; Poaceae; Pooideae;
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Pred. No. 8e-1
5; Mismatches
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                                                                                                                                        Score 140.5; DB 10;
Pred. No. 1.2e-11;
5; Mismatches 16;
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01-JUL-1993 (Rel. 2
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Beta-hordothionin F
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Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae;
Triticeae; Hordeum.
NCBI_TaxID=4513;
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STRAIN=CV. Bomi; TISSUE=Endosperm;
Rasmussen S.K., Rasmussen C.E.;
"Full-length cDNA clone encoding b.
Plant Mol. Biol. 21:579-579(1993).
                                                         This SWISS-PROT entry is copyright. It is produced through a collable between the Swiss Institute of Bioinformatics and the EMBL outst the European Bioinformatics Institute. There are no restrictions use by non-profit institutions as long as its content is in modified and this statement is not removed. Usage by and for comentities requires a license agreement (See http://www.isb-sib.ch/anor send an email to license@isb-sib.ch).
                                                                                                                                                                                                                                                             Carbonero
                                                                                                                                                                                                                                                                                      SEQUENCE
                                                                                                                                                         "Polyadenylation site heterogeneity in mRNA encoding the precurso; the barley toxin beta-hordothionin."; FEBS Lett. 200:103-106(1986).

-i- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TOXIC TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE LEVEL OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS, OF THESE PROTEINS IS NOT KNOWN.

-i- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.
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Matches 39
X-RAY CRYSTALLOGRAPHY (2.5 ANGSTROMS).
MEDLINE=91045879; PubMed=2235992;
Teeter M.M., Ma X.-Q., Rao U., Whitlow M.
"Crystal structure of a protein-toxin alpacetion with predicted models.";
Proteins 8:118-132(1990).
-i- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS ANIMAL CELLS. THEY SEEM TO EXERT 1
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Plant defense;
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CHAIN 28
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21-JUL-1986 (Rel. 01, Created)
01-JUL-1993 (Rel. 26, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Alpha-1-purothionin precursor (Purothionin A-II)
THI1.1 OR PUR-D1.
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STRAIN=cv. M
Jones B.L., 1
"Amino acid
wheat.";
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MEDLINE=78026451; PubMed=914810;
Ohtani S., Okada T., Yoshizumi H., Kagamiyama "Complete primary structures of two subunits clethal protein for brewer's yeast from wheat i J. Biochem. 82:753-767(1977).
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MEDLINE=95125120; PubMed=7824649;
Castagnaro A., Marana C., Carbonero P., Garcia-Olmedo "cDNA cloning and nucleotide sequences of alpha 1 and thionins from hexaploid wheat endosperm.";
Plant Physiol. 106:1221-1222(1994).
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Triticeae; Triticum.
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Ohtani S., Okada T., Kagamiyama H., Yoshizumi "The amino acid sequence of purothionin A, a to brewer's yeast from wheat.";
Agric. Biol. Chem. 39:2269-2270(1975).
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ae; Pooideae;
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RESULT 4
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TH 26

TH11-193 (Rel. 26, Created)

TO 1-JUL-1993 (Rel. 26, Last sequence update)

DT 01-JUL-1993 (Rel. 26, Last sequence update)

DT 01-JUL-1993 (Rel. 26, Last sequence update)

DT 01-WOV-1995 (Rel. 32, Last annotation update)

DT 01-NOV-1995 (Rel. 32, Last annotation update)

DT 01-NOV-1995 (Rel. 32, Last annotation update)

DT 01-WOV-1995 (Rel. 32, Last annotation update)

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DT 01-WOV-1995 (Rel. 32, Last annotation update)

DT 01-NOV-1995 (Rel. 32, Last annotation update)

DT 01-NOV-1995 (Rel. 32, Last annotation update)

TH11.2 OR PUR-B1.

OS TITLCE OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS,

CC 1-PINICARITY: BELONGS TO THE PLANT THIONIN FAMILY.

CC 1-PINICARITY: BELONGS TO THE PLANT THIONIN FAMILY.

CC This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation.
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PROSITE;
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PDB; 2PLH; 03-APR-96.

InterPro; IPR001010; Thionin.

Pfam; PF00321; plant_thionins; 1.

PROSITE; PS00271; THIONIN; 1.

Thionin; Plant_toxin; Signal; 3D-1
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OF THESE PROTEINS IS
SIMILARITY: BELONGS
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38; Conservative
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Pred. No. 1.1e-19;
2; Mismatches 5;
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ACIDIC PROTEIN.
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                 collaboration -
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RESULT 5
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PIR; S31695; S31695.
HSSP; P01543; 1BHP.
InterPro; IPR001010; Thionin.
Pfam; PF00321; Plant thionins; 1
PROSITE; PS00271; THTONIN; 1.
Thionin; Plant toxin; Signal.
SIGNAL 1 27
CHAIN 28 72
CHAIN 73 136
DISULFID 30 66 BY 6
DISULFID 30 66 BY 6
DISULFID 31 58 BY 6
DISULFID 39 56 BY 6
                                  "The amino acid s
Can. J. Biochem.
[5]
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P01543;
21-JUL-1986 (Rel. 01, 0
15-JUL-1998 (Rel. 36, I
28-FEB-2003 (Rel. 41, I
Purothionin A-I precura
                                                                                                                                                    SEQUENCE OF 28-72.
Ohtani s., Okada T., Kagamiyama H., Yosl
"The amino acid sequence of purothionin
to brewer's yeast from wheat.";
Agric. Biol. Chem. 39:2269-2270(1975).
X-RAY
Stec B
                                                   SEQUENCE OF 28-72.

MEDLINE=77046666; PubMed=990986;

Mak A.S., Jones B.L.;

"The amino acid sequence of wheat
Can. J. Biochem. 54:835-842(1976).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Triticum aestivum (Wheat).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tras
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poacea
Triticeae; Triticum.
NCBI_TaxID=4565;
                                                                                                                                                                                                                                                                                          STRAIN=cv. Manitoba 3;
MEDLINE=78026451; PubMed=914810;
Ohtani S., Okada T., Yoshizumi H., Kagamiyama "Complete primary structures of two subunits (lethal protein for brewer's yeast from wheat is 1. Biochem. 82:753-767(1977).
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STRAIN=cv. Rosella;
Hughes P.A., Llewellyn I
Submitted (JUN-1997) to
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CRYSTALLOGRAPHY (:
3., Rao U., Teeter
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Similarity 82.2%;
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    01, Created)
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    41, Last annotation update)
    precursor (Beta-purothionin).

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   ANGSTROMS).
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ACIDIC PROTEIN.
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Pred. No. 1.8e-18;
% Mismatches 6
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e; Pooideae;
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RESULT 6
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OS HORGEV
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OC FUKARY
OC MICHIT
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RP SEQUEN
RA HOLLOX
RA HOLLOX
RA SUBMIT
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Matches 37
                                                                               SEQUENCE FROM N.A.
Holtorf S., Schuetz C
Submitted (MAR-1996)
[2]
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Thionin;
SIGNAL
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HELIX
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Acta Crystallogr. D 51:914-924(1995).
-!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TOXIC TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE LEVEL OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS, OF THESE PROTEINS IS NOT KNOWN.
-!- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.
                                                                                                                                                              THN6 HORVU STANDARD; PRT; 137 AA.

P09618;

01-MAR-1989 (Rel. 10, Created)

01-NOV-1997 (Rel. 35, Last sequence update)

28-FEB-2003 (Rel. 41, Last annotation update)

Leaf-specific thionin precursor (Clone BTH6).

Hordeum vulgare (Barley).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooidea

Triticeae; Hordeum.
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SEQUENCE OF 29-74 FROM N.A.
STRAIN=cv. Carina;
Bohlmann H., Clausen S., Behnke S., Giese H., Hiller C.,
Reimann-Phillip U., Schrader G., Barkholt V., Apel K.;
"Leaf-specific thionins of barley - a novel class of cell wall
proteins toxic to plant-pathogenic fungi and possibly involved
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        SEQUENCE
                                                                                                                                                 NCBI_TaxID=4513;
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1BHP; 15-MAR-96.

rPro; IPR001010; Thionin.

r; PF00321; plant thionins; 1

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1; Mismatches 7;
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                                                                                               Bohlmann H.;
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RESULT 7
THN3 HORVU STANDARD
ID THN3 HORVU STANDARD
AC P08772;
DT 01-NOV-1988 (Rel. 09, C
DT 01-FEB-1996 (Rel. 33, L
DT 28-FEB-2003 (Rel. 41, L
DE Leaf-specific thionin p
GN THI1.3.
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Matches 27
                                                                          SEQUENCE FROM N.A.

STRAIN=cv. Carina;

Bohlmann H., Apel K.;

"Isolation and characterization of cD

thionins closely related to the endos

barley (Hordeum vulgare L.).";

Mol. Gen. Genet. 207:446-454(1987).

-I- FUNCTION: THIONINS ARE SMALL PLAN

TO ANIMAL CELLS. THEY SEEM TO EXE

LEVEL OF THE CELL MEMBRANE. THE P

OF THESE PROTEINS IS NOT KNOWN.

-I- SIMILARITY: BELONGS TO THE PLANT
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EMBO J.
This SWISS-PROT entry is copyright. It is produced through a collaboration between the Swiss Institute of Bioinformatics and the EMBL outstation - the European Bioinformatics Institute. There are no restrictions on its use by non-profit institutions as long as its content is in no way modified and this statement is not removed. Usage by and for commercial
                                                                                                                                                                                                                                                                                    Hordeum vulgare (Barley).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; Liliopsida; Poales; Poaceae; Pooideae;
Triticeae; Hordeum.
                                                                                                                                                                                                                                                                      NCBI_TaxID=4513;
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O J. 7:1559-1565(1988).

FUNCTION: THIONINS ARE SMALL PLANT PROTEI
TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR
LEVEL OF THE CELL MEMBRANE. THE PRECISE F
OF THESE PROTEINS IS NOT KNOWN.

SIMILARITY: BELONGS TO THE PLANT THIONIN
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l Similarity 58.7%;
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BY SIMILARITY.
LEAF-SPECIFIC THIONIN.
ACIDIC PROTEIN.
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Pred. No. 6.3e-13;
5; Mismatches 12;
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                                                                                      PLANT THIONIN
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see http://www.isb-sib.ch/announce/
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RESULT 8
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PROSITE; PS00271; THIONIN; 1.
Plant defense; Thionin; Plant toxin
DISULFID 3 41 BY SIM
DISULFID 4 31 BY SIM
DISULFID 16 27 BY SIM
SEQUENCE 47 AA; 5288 MW; 87E104
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P07504;
01-APR-1988
01-APR-1988
28-FEB-2003
                                                                                                                                                                                                                                                                                                          Vernon L.P., Evett G.E., Zeikus R.D., Gray W.R.;
"A toxic thionin from Pyrularia pubera: purification, properties, amino acid sequence.";
Arch. Biochem. Biophys. 238:18-29(1985).
-!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TOXIC TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE LEVEL OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS, OF THESE PROTEINS IS NOT KNOWN.
-!- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.
HSSP; P01544; A24074.
HSSP; P01544; A24074.
InterPro; IPR001010; Thionin.
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Pfam; PF00
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or send a
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Bukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;

Santalales; Santalaceae; Pyrularia.
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PIR; S22515; S22515.
HSSP; P01543; 1BHP.
InterPro; IPR001010; Thionin.
Pfam; PF00321; plant thionins; 1
PROSITE; PS00271; THIONIN; 1.
Plant defense; Thionin; Plant to:
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STRAIN=CV. Carina;
MEDLINE=92322947; Pub
Amasan I., Becker W
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P09617;
01-MAR-1989 (Rel. 10, C
01-FEB-1991 (Rel. 17, L
28-FEB-2003 (Rel. 41, L
Leaf-specific thionin p
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THI1.5.

Hórdeum vulgare (Barley).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracentatophyta; Magnoliophyta; Liliopsida; Poales; Poacea

Triticeae; Hordeum.
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-i- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TOXIC TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT AT THE LEVEL OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLANTS, OF THESE PROTEINS IS NOT KNOWN.

-i- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.
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"Thionin genes specifically
Planta 171:241-246(1987).
                                                                                                                                                                                                                                                                                                                                                                                                                                 This SWISS-PROT entry is copyright. It is produced through between the Swiss Institute of Bioinformatics and the the European Bioinformatics Institute. There are no resuse by non-profit institutions as long as its content modified and this statement is not removed. Usage by entities requires a license agreement (See http://www.ishor send an email to license@isb-sib.ch).
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AC P01538;
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RT MEDLINE=9126 (
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FUNCTION: THION.

TO ANIMAL CELLS. 'L.

LEVEL OF THE CELL MEL.

OF THESE PROTEINS IS NO.

-:- SIMILARITY: BELONGS TO TH.

PDB; 1EDO; 04-FEB-00.

InterPro; IPR001010; Thionin.

Pfam; PF00321; Plant thionins; 1.

PROSITE; PS00271; THIONIN; 1.

PROSITE; PS00271; THIONIN; 1.

Plant defense; Signal; Thionin; Plant tox.

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MEDLINE=72049894; PubMed=4941626;

Samuelsson G., Pettersson B.;

"The disulfide bonds of viscotoxin A3 from the European mis

(Viscum album L., Loranthaceae).";

Acta Chem. Scand. 25:2048-2054(1971).

-!- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT

LEVEL OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN PLOTE OF THESE PROTEINS IS NOT KNOWN.

-!- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   SEQUENCE OF 27-72.

MEDLINE=69157811; PubMed=5719166;

Samuelsson G., Seger L., Olson T.;

"The amino acid sequence of oxidized viscotoxin mistletoe (Viscum album L, Loranthaceae).";

Acta Chem. Scand. 22:2624-2642(1968).
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MEDLINE=91266934; PubMed=1710983;
Schrader G., Apel K.;
"Isolation and characterization of mistletoe (Viscum album).";
Eur. J. Biochem. 198:549-553(1991).
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Viscum album (European mistletoe).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta;
Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots;
Santalales; Santalaceae; Viscum.
NCBI_TaxID=3972;
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Similarity 52.2%;
24; Conservative
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CCPNTTGRNI YNACRLTGAPRPTCAKLSGCKI ISGSTCPSDYPK
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Pred. No. 1.8e
6; Mismatches
                                                                                 Score 129.5; DB 1;
Pred. No. 1.1e-08;
7; Mismatches 15;
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RESULT

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RESULT 12
THNB_PHOLI STANDARD; PRT; 46 AA.
AC P59358;
DT 28-FEB-2003 (Rel. 41, Created)
DT 28-FEB-2003 (Rel. 42, Last sequence update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
DT 15-SEP-2003 (Rel. 42, Last annotation update)
OC Eligatoxin B.
OS Phoradendron liga (Argentine mistletoe).
OC Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracoccesion occuratophyta; Magnoliophyta; eudicotyledons; core eudicoccesion occuratophyta; Santalaceae; Phoradendron.
OX NCBI TaxID=3968;
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Matches 22
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(MEDLINE=71284202; PubMed=5568678;

(MEDLINE=71284202; PubMed=5568678;

Samuelsson G., Pettersson B.M.;

"The amino acid sequence of viscotoxin B from the Europea (Viscum album L, loranthaceae).";

Eur. J. Biochem. 21:86-89(1971).

-1- FUNCTION: THIONINS ARE SMALL PLANT PROTEINS WHICH ARE TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT LEVEL OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN OF THESE PROTEINS IS NOT KNOWN.

-1- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.

PIR; A91187; VTVAB.

**HSSP; P01543; 1BHP.**

InterPro; IPR001010; Thionin.

**Pfam; PF00321; plant thionins; 1.

**Pfam; PF00321; plant thionins; 1.

**Plant defense; Thionin; Plant toxin; Signal.**
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01-NOV-1988 (Rel. 09, Created)
01-AUG-1991 (Rel. 19, Last sequence up
28 FEB-2003 (Rel. 41, Last annotation
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SIGNAL

CHAIN

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CONFLICT

SEQUENCE
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MEDLINE=91266934; PubMed=1710983;
Schrader G., Apel K.;

"Isolation and characterization of mistletoe (Viscum album).";
Eur. J. Biochem. 198:549-553(1991)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Viscotoxin B precursor (Fragment).
THI2.2.
THI2.2.
Viscum album (European mistletce).
Eukaryota; Viridiplantae; Streptophyta; Embryo Spermatophyta; Magnoliophyta; eudicotyledons; Santalales; Santalaceae; Viscum.
NCBI_TaxID=3972;
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SEQUENCE
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BY SIMILARITY.
BY SIMILARITY.
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Pred. No. 1.3e-08;
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L Acta Chem. Scan...

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RP DISULFIDE BONDS.

RY MEDLINE=75015879; PubMed=4607177;

RA MEDLINE=75015879; PubMed=4607177;

RA Olson T., Samuelsson G.;

RT "The disulphide bonds of viscotoxin A2 from the European m. The disulphide bonds of viscotoxin A2 from the European m. State of the disulphide bonds of viscotoxin A2 from the European m. The Cuscum album L. Loranthaceae).";

RT (Viscum album L. Loranthaceae).";

RT (Viscum album L. Loranthaceae).";

RL Acta Pharm. Suec. 11:381-386 (1974).

CC C.:- FUNCTION: THIONIN SARE SMALL PLANT PROTEINS WHICH ARE CCC TO ANIMAL CELLS. THEY SEEM TO EXERT THEIR TOXIC EFFECT CCC LEVEL OF THE CELL MEMBRANE. THE PRECISE FUNCTION, IN CCC C.:- SIMILARITY: BELONGS TO THE PRECISE FUNCTION, IN DR HSSP; P01544; 2PLH.

DR PIR, A90005; VTVAAA2.

DR HSSP; P01544; 2PLH.

DR PASSITE; PS00321; Plant thionins; 1.

PROSITE; PS00321; Plant thionins; 1.

PROSITE; PS00271; THIONIN; 1.

RM Plant defense; Thionin; Plant toxin.

PROBABLE.

4 32 PROBABLE.
                                                                                                                  THN2_VISAL
THN2_VISAL
THN2_VISAL
AD THN2_VISAL
AC P32880
DT 21-JUL
DT 22-FEB
DE Viscot
GN THI2.3
OS Viscum
OC Eukary
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RN [1]
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RA Olson
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A Li S.S., Gullbo J., Lindholm P., Larsson R., Thunberg E.,
A Samuelsson G., Bohlin L., Claeson P.;
"Ligatoxin B, a new cytotoxic protein with a novel helix-turn-heli
T DNA-binding domain from the mistletoe Phoradendron liga.";
L Biochem. J. 366:405-413(2002).
C -i- FUNCTION: Thionins are small plant proteins which are toxic
to animal cells. They seem to exert their toxic effect at the
level of the cell membrane.
C -i- MISCELLANEOUS: The predicted 3D structure shares similarity wi
C the HTH DNA-binding motifs, leading to the suggestion that the
c intracellular thionins of an infected plant may activate signa
C networks that regulate innate responses, including the
hypersensitive reaction.
-i- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.
Pfam; PF00321; plant thionins; 1.
BR PROSITE; PS00271; THIONIN; 1.
BR PROSITE; PS00271; THIONIN; 1.
BY SIMILARITY.
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Olson T., S.
"The amino
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21-JUL-1986 (Rel. 01, Created)
21-JUL-1986 (Rel. 01, Last sequence update)
21-JUL-1986 (Rel. 01, Last sequence update)
28-FEB-2003 (Rel. 41, Last annotation update)
Viscotoxin A2.
THI2.3.
Viscum album (European mistletoe).
Eukaryota; Viridiplantae; Streptophyta; Embryophyta; Tracheophyta; Spermatophyta; Magnoliophyta; eudicotyledons; core eudicots; Santalales; Santalaceae; Viscum.
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ino acid sequence of viscotoxin album L., Loranthaceae).";
em. Scand. 26:585-595(1972).
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7; Mismatches 15;
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RESULT 14
THN DENCL
ID THN DENCL
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DE Denclatoxin E
RESULT 15
THNA PHOLI
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OC Eukary
OC Sperma
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Samuelsson G., Pettersson B.;
Samuelsson G., Pettersson B.;
Samuelsson G., Pettersson B.;
"Toxic proteins from the mistletoe Dend amino acid sequence of denclatoxin B.";
Acta Pharm. Suec. 14:245-254(1977).
-!- FUNCTION: THIONINS ARE SMALL PLANT TO ANIMAL CELLS. THEY SEEM TO EXERT LEVEL OF THE CELL MEMBRANE. THE PRE OF THESE PROTEINS IS NOT KNOWN.
-!- SIMILARITY: BELONGS TO THE PLANT TH PIR; A01804; DKDCB.
HSSP; P01542; 1CBN.
InterPro; IPR001010; Thionin.
Pfam; PF00321; plant thionins; 1.
PROSITE; PS00271; THTONIN; 1.
Plant defense; Thionin; Plant toxin.
DISULFID 3
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DISULFID 16
SEQUENCE 46 AA; 4821 MW; C107A82B29.
                                                                                                          THNA PHOLI
P01540;
21-JUL-1986
21-JUL-1986
15-SEP-2003
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SEQUENCE
                    Ligatoxin A.

Phoradendron liga (Argentine mistletoe).

Phoradendron liga (Argentine mistletoe).

Phoradendron liga (Argentine mistletoe).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core elsantalales; Santalaceae; Phoradendron.

NCBI_TaxID=3968;
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Dendrophthora clavata (Columbian mistletoe).

Eukaryota; Viridiplantae; Streptophyta; Embryophyta;

Spermatophyta; Magnoliophyta; eudicotyledons; core eu

Santalales; Santalaceae; Dendrophthora.

NCBI_TaxID=3965;
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nilarity 45.5%;
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SEQUENCE. MEDLINE=83044670;

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"Isolation and properties of ligatoxin A, a toxic protein from the mistletoe Phoradendron liga.";
Acta Pharm. Suec. 19:285-292(1982).
-!- FUNCTION: Thionins are small plant proteins which are toxic to animal cells. They seem to exert their toxic effect at the clevel of the cell membrane. The precise function, in plants, continuous files of these proteins is not known.

C. -i- SIMILARITY: BELONGS TO THE PLANT THIONIN FAMILY.

PRESP; PO1544; 2PLH.
INTERPRO; IPRO01010; Thionin.

PROSITE; PS00271; THIONIN; 1.

BY SIMILARITY.

DISULFID 3
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32
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SEQUENCE 46 AA; 4840 MW; 635EB18CF5A26D5B CRC64;
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Best Local Similarity 45.5%;
Matches 20; Conservative
                                                                   1 KSCCRSTLGRNCYNLCRVRGAQK-LCAGVCRCKLTSSGKCPTGF 43
KSCCPSTTARNIYNTCRLTGTSRPTCASLSGCKIISGSTCBSGW 44
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NyAlternate names: purchionin IPrecursor; thionin
C.Species: Hordeum vulgare (barley)
C.Species: Hordeum vulgare (barley)
C.Capate: 31.May.1980 #sequence revision 01-Dec-2000 #text_change 01-Dec-2000
C;Accession: LA0087; A9164; A91956; A01888
A;Title: Nucleotide sequence and endosperm-specific expression of the structural gene for the structural gene gene for the structural gene for the structural gene gene for 
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RESULT 2 \$22977 beta-hordothionin

precursor

barley

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C;Accession: S22977; A24866
R;Rasmussen, S.K.; Rasmussen, C.
submitted to the EMBL Data Library, June 1992
A;Description: Full-length cDNA clone encoding base; Personal S22977
A;Reference number: S22977
A;Accession: S22977
A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-136 <RAS>
A;Cross-references: EMBL:Z13008; NID:g22736; PIDN:R;Hernandez-Lucas, C.; Royo, J.; Paz-Ares, J.; Por FEBS Lett. 200, 103-106, 1986
A;Title: Polyadenylation site heterogeneity in mRN A;Reference number: A24866
A;Accession: A24866
A;Accession: A24866
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A; Residues: 16-61 <OH1>
A; Experimental source: strain Manitoba 3
R; Ohtani, S.; Okada, T.; Kagamiyama, H.; Yoshizumi,
Agric. Biol. Chem. 39, 2269-2270, 1975
A; Title: The amino acid sequence of purothionin A, & A; Reference number: A90018
A; Accession: B90018
A; Accession: B90018
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N;Alternate names: alpha-1-purothionin; purot
C;Species: Triticum aestivum (common wheat)
C;Date: 24-Apr-1984 #sequence revision 16-Fel
C;Accession: S31670; B91945; B90018; A90913;
R;Garcia-Olmedo, F.
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A; Residues: 10-136 <HER>
A; Cross-references: GB:X05901
C; Superfamily: viscotoxin
F; 1-18/Domain: signal sequence #status predicted <SIG>
F; 19-127/Product: beta-hordothionin #status predicted
                                                                                                                         A; Title: Amino acid sequences
A; Reference number: A90913
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A;Residues: 16-61 <OH2>
R;Jones, B.L.; Mak, A.S.
Cereal Chem. 54, 511-523,
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A; Cross-references: EMBL: X70666
R; Ohtani, S.; Okada, T.; Yoshizumi,
J. Biochem. 82, 753-767, 1977
J. Biochem. 82, 753-767, 1977
A; Title: Complete primary structures
A;Experimental source: cv. C;Superfamily: viscotoxin C;Keywords: seed; toxin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     submitted to the EMBL Data A; Reference number: S31670
                                                              A; Molecule type: | A; Residues: 16-61
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Date: 20-Feb-1995 #sequence_revision 20-Feb-1995 #text_change 16-Jul-1999
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                                                                                                                                                   the
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Score 225; DB 2;
Pred. No. 2e-17;
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on 16-Feb-1996_#text_change
                                                                                                                                                 two alpha-purothionins
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         DB 2;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  barley toxin
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A; Molecule type: protein
A; Residues: 1-45 < OH1>
A; Residues: 1-45 < OH1>
A; Experimental source: strain Manitoba 3
R; Ohtani, S.; Okada, T.; Kagamiyama, H.; Yo
Agric. Biol. Chem. 39, 2269-2270, 1975
A; Title: The amino acid sequence of purothi
A; Reference number: A90018
A; Accession: A90018
                                                                                                                                                                                                                                             RESULT 5
$31695
alpha-1-thionin - whe
c; Species: Triticum a
C; Date: 20-Feb-1995 #
C; Accession: $31695
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    purothionin A-I - wheat
N;Alternate names: beta-purothionin
C;Species: Triticum aestivum (common wheat)
C;Date: 22-Jun-1981 #sequence revision 22-Jun-1981 #text_
C;Date: 22-Jun-1981 #sequence revision 22-Jun-1981 #text_
C;Accession: A91945; A90018; A90742; A01806
C;Accession: A91945; A90018; A90742; A01806
R;Ohtani, S.; Okada, T.; Yoshizumi, H.; Kagamiyama, H.
J. Biochem. 82, 753-767, 1977
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         A; Molecule type: protein
A; Residues: 1-45 < MAK>
A; Residues: this protein is called beta-purothionin by the autl
C; Superfamily: viscotoxin
C; Keywords: seed; toxin
F; 3-39, 4-31, 12-29, 16-25/Disulfide bonds: #status predicted
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A; Molecule type: protein
A; Residues: 1-45 < OH2>
R; Mak, A.S.; Jones, B.L.
Can. J. Biochem. 22, 835-842, 1976
A; Title: The amino acid sequence of wheat
A; Reference number: A90742
A; Accession: A90742
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   A;Title: Complete primary structures of two A;Reference number: A91945; MUID:78026451; I A;Accession: A91945
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             S
                                                                        A;Molecule type: mRNA
A;Residues: 1-136 <GAR>
A;Cross-references: EMBL:X70665;
C;Superfamily: viscotoxin
                                                                                                                                               submitted to the EMBL Data A, Reference number: S31670 A, Accession: S31695 A, Status: preliminary
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Best Local S
Matches 37
Query Match
Best Local S
Matches 37
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Best Local Similarity
Matches 38; Conserv
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| Similarity 82.2%;
| 37; Conservative
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th 82.6%;
Similarity 82.2%;
37; Conservative
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                                                                                                                                                                                                           Library,
                                                                                                                                                                                                                                                              (common wheat)
=_revision 20-Feb-1995 #text_change 16-Jul-1999
                                                                                            NID:g21845;
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Pred. No. 2.4e-17;
2; Mismatches 5
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Pred. No. 1.4e-16;
L; Mismatches
   Score 214; DB 2
Pred. No. 3e-16;
2; Mismatches
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                                                                                           PIDN:CAA50003.1; PID:g21846
                                 DB
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submitted to the EMBL Data Library, April 1988
A)Reference number: 807648
A)Rocession: 807648
A)Rocession: 807648
A)Rocession: 807648
A)Rolecule type: mRNA
A)Residues: 1-137 <APE>
R)BOhlmann, H, Apel, K.

MO1. Gen. Genet. 207, 446-454, 1987
A)Title: Isolation and characterization of cDNAs coding for leaf-specific thionins
A)Reference number: 806349
A)Rocession: 806349
A)Rolecule type: mRNA
A)Residues: 1-33, A', 35-137 <BOH>
A)Rolecule type: DNA
A)Residues: 29-1465, 1988
A)Title: Leaf-specific thionins of barley - a novel class of cell wall proteins to the compared with conceptual translation
A)Rocession: 800825
A)Accession: 800825
A)Accession: A)8776
A)ACCESSION: B)8776
A)ACCESSION: A)8776
A)ACC
RESULT 7
A24074
pyrularia thionin - oil nut
C;Species: Pyrularia pubera (oil nut, buffalo nut)
C;Species: Pyrularia pubera (oil nut, buffalo nut)
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #te
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #te
C;Date: 10-Sep-1999 #sequence_revision 10-Sep-1999 #te
C;Parcession: A24074
A;Vernon, L.P.; Evett, G.E.; Zeikus, R.D.; Gray, W.R.
R;Vernon, L.P.; Evett, G.E.; Zeikus, R.D.; Gray, W.R.
Arch. Biochem. Biophys. 238, 18-29, 1985
A;Title: A toxic thionin from Pyrularia pubera: purifi
A;Reference number: A24074; MUID:85173323; PMID:398561
A;Accession: A24074
A;Molecule type: protein
A;Residues: 1-47 <VER>
C;Superfamily: viscotoxin
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S07648
S07648
thionin precursor, leaf - barley
N;Alternate names: thionin BTH6
C;Species: Hordeum vulgare (barley)
C;Date: 31-Mar-1990 #sequence revision 31-Mar-1990
C;Accession: S07648; S06349; S00825; A38776
R;Acces, K.
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Best Local S
Matches 26
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                                                                                                                        ; Zeikus, R.D.; Gray, W.R.
, 18-29, 1985
om Pyrularia pubera: purification,
MUID:85173323; PMID:3985614
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Score 161.5; DE Pred. No. 1.3e-16; Mismatches
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N;Alternate names: jasmonate-indu
C;Species: Hordeum vulgare (barle:
C;Date: 03-Feb-1994 #sequence_rev
C;Accession: S22515
R;Andresen, I:; Becker, W.; Schlu:
Plant Mol: Biol. 19, 193-204, 199:
A;Title: The identification of le:
A;Reference number: S22514; MUID:
A;Accession: S22515
A;Molecule type: mRNA
A;Residues: 1-137 <AND>
A;Cross-references: EMBL:S39760
C;Superfamily: viscotoxin
         thionin variant Thi2Call - Abyssinian crambe
C;Species: Crambe abyssinica (Abyssinian crambe)
C;Date: 01-Aug-1995 #sequence_revision 01-Sep-1995 #text
C;Accession: S52554
R;Schrader-Fischer, G.; Apel, K.
Mol. Gen. Genet. 245, 380-389, 1994
A;Title: Organ-specific expression of highly divergent t
A;Reference number: S52545; MUID:95115690; PMID:7816048
A;Accession: S52554
A;Accession: S52554
A;Status: preliminary
                                                                                                                                                                                 RESULT 10
S52554
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S16099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       C;Species: Viscum a.
C;Date: 19-Mar-1997
C;Accession: S16099
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S22515
                                                                                                                                                                                                                                                                                                                                                                                          A;Status: preliminary
A;Molecule type: mRNA
A;Residues: 1-111 <EUR>
C;Superfamily: viscotox:
                                                                                                                                                                                                                                                                                                                                                                                                                                                           R;Schrader, G.; Apel, K.
Eur. J. Biochem. 198, 549-553, 1991
A;Title: Isolation and characterization of A;Reference number: S16099; MUID:91266934; A;Accession: S16099
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               viscotoxin - European mistletoe
C;Species: Viscum album (European
C;Date: 19-Mar-1997 #sequence_revi
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Best Local
Matches 2
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Best Loc
Matches
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;Alternate names: jasmonate-induced
;Species: Hordeum vulgare (barley)
;Date: 03-Feb-1994 #sequence_revisic
;Accession: S22515
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preliminary
bype: mRNA
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Similarity 50.0%;
23; Conservative
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24; Conservative
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_revision 19-Mar-1997
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                                                                                                                                                                                                                                                                                                                        Score 129.5; DB 2;
Pred. No. 3.2e-07;
7; Mismatches 15;
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Pred. No. 2.9e-09;
D; Mismatches 11
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Pred. No. 7.1e-09;
5; Mismatches 15;
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viscotoxin A3 - European mistletoe
C;Species: Viscum album (European mistletoe)
C;Date: 13-Jul-1981 #sequence_revision 13-Jul-1981 #text_ch
C;Accession: A01801
R;Samuelsson, G.; Seger, L.; Olson, T.
Acta Chem. Scand. 22, 2624-2642, 1968
A;Title: The amino acid sequence of oxidized viscotoxin A3
A;Reference number: A90003; MUID:69157811; PMID:5719166
A;Accession: A01801
A;Molecule type: protein
A;Residues: 1-46 <SAM>
R;Samuelsson, G.; Pettersson, B.
Acta Chem. Scand. 25, 2048-2054, 1971
A;Title: The disulfide bonds of viscotoxin A3 from the Euro
A;Reference number: A90004; MUID:72049894; PMID:4941626
A;Contents: annotation; disulfide bonds
C;Superfamily: viscotoxin
C;Keywords: toxin
F;3-40,4-32/Disulfide bonds: #status predicted
F;16-26/Disulfide bonds: #status experimental
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Acta Pharm. Suec. 11, 381-386, 1974
A;Title: The disulphide bonds of viscotoxin A2 from the A;Reference number: A90013; MUID:75015879; PMID:4607177
A;Contents: annotation; disulfide bonds
C;Superfamily: viscotoxin
C;Keywords: toxin
C;Keywords: toxin
F;3-40,4-32/Disulfide bonds: #status predicted
F;16-26/Disulfide bonds: #status experimental
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C;Species: Viscum album (European mistletoe)
C;Date: 13-Jul-1981 #sequence_revision 08-Oct-1981 #text_change 04-Oct-1996
C;Accession: A90005; A01799
R;Olson, T.; Samuelsson, G.
Acta Chem. Scand. 26, 585-595, 1972
A;Title: The amino acid sequence of viscotoxin A2 from the European mistleto
A;Reference number: A90005; MUID:72211843; PMID:5035954
A;Accession: A90005
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C; Superfamily: vis
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Best Local Similarity
Matches 21; Conser
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;3-40,4-32/Disulfide bonds: #sta
;16-26/Disulfide bonds: #status
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Matches 20; Conser
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Similarity 46.7%;
21; Conservative
KSCCRSTLGRNCYNLCRVRGAQK-LCAGVCRCKLTSSGKCPT
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larity 50.0%;
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                                                           Score 115.5; DB 1
Pred. No. 5.5e-06;
; Mismatches 14
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Pred. No. 5.5e-06;
9; Mismatches 12;
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Pred. No. 5.6e-06;
7; Mismatches 16
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                                    R;Thunberg, E.; Samuelsson, G.
Acta Pharm. Suec. 14 (Suppl.), 64, 19
A;Title: Isolation and properties of
A;Reference number: A01803
A;Accession: A01803
A;Molecule type: protein
A;Residues: 1-46 <THU>
C;Superfamily: viscotoxin
C;Keywords: toxin
C;Keywords: toxin
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                                 ;Xeywords: toxin
;3-40,4-32,16-26/Disulfide
 Query Match
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RESULT 14

DXDCB

denclatoxin B - Columbia mistletoe

C; Species: Dendrophthora clavata (Columbia mistletoe)

C; Date: 30-Apr-1981 #sequence_revision 30-Apr-1981 #text

C; Accession: A01804

R; Samuelsson, G.; Pettersson, B.

Acta Pharm. Suec. 14, 245-254, 1977

A; Title: Toxic proteins from the mistletoe Dendrophthora

A; Reference number: A01804; MUID:78016835; PMID:906843

A; Accession: A01804

A; Molecule type: protein

A; Residues: 1-46 < SAM>
C; Superfamily: viscotoxin

C; Keywords: toxin

F; 3-40, 4-32, 16-26/Disulfide bonds: #status predicted
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C;Species: Viscum album (European mistletoe)
C;Date: 31-Mar-1992 #sequence_revision 31-Mar-1992 #text_char
C;Accession: A91187; A01799
R;Samuelsson, G.; Pettersson, B.M.
Eur. J. Biochem. 21, 86-89, 1971
A;Title: The amino acid sequence of viscotoxin B from the Eur
A;Reference number: A91187; MUID:71284202; PMID:5568678
A;Accession: A91187
A;Molecule type: protein
A;Residues: 1-46 <SAM>
C;Superfamily: viscotoxin
C;Keywords: toxin
F;3-40,4-32,16-26/Disulfide bonds: #status predicted
ligatoxin A - Argentine mistletoe (tentative sequence) C;Species: Phoradendron liga (Argentine mistletoe) C;Date: 30-Apr-1981 #sequence_revision 30-Apr-1981 #teC;Accession: A01803
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Best Local S
Matches 20
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Best Local Similarity 47.6%;
Matches 20; Conservative 9
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Pred. No. 9.1e
8; Mismatches
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9.1e-06;
nes 15;
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2: /cgn2_6/ptodata/2/pubpaa/US06_NEW_PUB.pep:*

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US-10-277-233-230

US-10-184-634-411

US-10-184-634-453

US-10-184-634-453

US-10-063-685-15

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  Sequence 8, Appli
Sequence 11, Appl
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Sequence 5, Appli
Sequence 230, App
Sequence 230, App
Sequence 411, App
Sequence 411, App
Sequence 453, App
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Sequence 15, Appl
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Sequence 289, App
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ALIGNMENTS

RESULT 1 US-09-864-169-8

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Sequence 8, Application US/09864169
; Dublication No. US20030228654A1
; GENERAL INFORMATION:
; APPLICANT: IMAEDA, TAKAO
; APPLICANT: HIRAI, MASAH;
; APPLICANT: HIRAI, MASHI
; APPLICANT: SHIMAMURA, TAKASHI
; APPLICANT: KOHDA, KATSUNORI
; APPLICANT: KOHDA, KATSUNORI
; APPLICANT: MURAMOTO, NOBUHIKO
TITLE OF INVENTION: METHOD FOR PRODUCING ANTIMICROBIAL PRO
FILE REFERENCE: 208377US0
CURRENT APPLICATION NUMBER: US/09/864,169
CURRENT FILING DATE: 2001-05-25
; PRIOR APPLICATION NUMBER: JP2000-161090
PRIOR APPLICATION OUMBER: JP2000-161090
PRIOR APPLICATION OUMBER: JP2000-161090
; SEQ ID NO 8
; LENGTH: 54
; TYPE: PRT
; ORGANISM: Hordeum vulgare
US-09-864-169-8
RESULT 2
US-09-864-169-11
; Sequence 11, Application US/09864169
; Publication No. US20030228654A1
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Best Local Similarity 100.
Matches 45; Conservative
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APPLICANT:

KOHDA,

KATSUNORI

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*; GENERAL INFORMATION:

APPLICANT: IMAEDA, TAKAO
APPLICANT: YAMADA, YUKIO
APPLICANT: YAMADA, YUKIO
APPLICANT: HIRAI, MASANA
APPLICANT: SHIMAMURA, TAKASHI
APPLICANT: KOHDA, KATSUNORI
APPLICANT: MURAMOTO, NOBUHIKO
TITLE OF INVENTION: METHOD FOR PRODUCING ANTIMICROBIAL PROTEIN AND FUSION PROTEILE REFERENCE: 208377US0
CURRENT APPLICATION NUMBER: US/09/864,169
CURRENT FILING DATE: 2001-05-25
PRIOR APPLICATION NUMBER: JP2000-161090
PRIOR APPLICATION NUMBER: JP2000-161090
PRIOR APPLICATION NUMBER: JP2000-161090
PRIOR FILING DATE: 2000-05-26
NUMBER OF SEQ ID NOS: 12
SOFTWARE: Patentin version 3.0
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CURRENT APPLICATION NUMBER: US/09/864,169
CURRENT FILING DATE: 2001-05-25
PRIOR APPLICATION NUMBER: JP2000-161090
PRIOR FILING DATE: 2000-05-26
NUMBER OF SEQ ID NOS: 12
SOFTWARE: PatentIn version 3.0
SEQ ID NO 11
LENGTH: 88
TYPE: PRT
ORGANISM: Hordeum vulgare
US-09-864-169-11
                                                                                                                                    RESULT 4
US-09-864-169-5
; Sequence 5, Application US/09864169
; Publication No. US20030228654A1
; GENERAL INFORMATION:
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SEQ ID NO 2
LENGTH: 124
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APPLICANT: IMAEDA, TAKAO
APPLICANT: YAMADA, YUKIO
APPLICANT: HIRAI, MASANA
APPLICANT: SHIMAMURA, TAF
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APPLICANT: HIRAI, MASANA
APPLICANT: SHIMAMURA, TAKASHI
APPLICANT: KOHDA, KATSUNORI
APPLICANT: MURAMOTO, NOBUHIKO
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APPLICANT: IMAEDA, TAKAO
APPLICANT: YAMADA, YUKIO
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llarity 100.0%;
Conservative (
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               100.0%; Score 259; DB 12; llarity 100.0%; Pred. No. 9.7e-22; Conservative 0; Mismatches 0;
      TAKASHI
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Pred. No. 7.1e-22;
; Mismatches 0;
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APPLICANT: Krieger, Timothy J.

APPLICANT: Taylor, Robert
APPLICANT: Erfle, Douglas
APPLICANT: Fraser, Janet R.
APPLICANT: West, Michael H.P.
APPLICANT: McNicol, Patricia J.
TITLE OF INVENTION: COMPOSITIONS AND METHOL
TITLE OF INVENTION: WITH ANTIBIOTICS
FILE REFERENCE: 660081.406
CURRENT APPLICATION NUMBER: US/09/030,619B
CURRENT FILING DATE: 1998-02-25
NUMBER OF SEQ ID NOS: 232
SOFTWARE: FastSEQ for Windows "
SEQ ID NO 230
LENGTH: 46
TYPE: PRT
                                                                                                                                                                                 RESULT 6
US-10-277-233-230
Convence 230, Ap
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US-09-030-619-230
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TITLE OF INVENTION: METHOD FOR PRODUCING ANT
FILE REFERENCE: 208377US0
CURRENT APPLICATION NUMBER: US/09/864,169
CURRENT FILING DATE: 2001-05-25
PRIOR APPLICATION NUMBER: JP2000-161090
PRIOR FILING DATE: 2000-05-26
NUMBER OF SEQ ID NOS: 12
SOFTWARE: Patentin version 3.0
                                                                                                                       GENERAL INFORMATION:
APPLICANT: Krieger, Timothy J.
APPLICANT: Taylor, Robert
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LENGTH: 543
                                                                                                                                                                          Sequence 230, A Publication No.
                                                                                                                                                                                                                                                                                                                                                     Query Match 64.3%;
Best Local Similarity 58.7%;
Matches 27; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Query Match 100.0%;
Best Local Similarity 100.0%;
Matches 45; Conservative 0;
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    ដូដូដូ
T: Fraser, Janet R.

T: West, Michael H.P.

T: McNicol, Patricia J.

INVENTION: COMPOSITIONS AND METHODS FOR INVENTION: INFECTIONS USING CATIONIC PE INVENTION: WITH ANTIBIOTICS
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                                                                                                       Taylor, Robert
Erfle, Douglas
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5. US20030232750A1
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Pred. No. 8.6e-12;
6; Mismatches 12
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Pred. No. 3.8e-21;
; Mismatches 0;
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                   LONE OR IN COMBINATION
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RESULT 8
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CURRENT APPLICATION NUMBER: US/10/277,233
CURRENT FILING DATE: 2002-10-18
NUMBER OF SEQ ID NOS: 232
SOFTWARE: FastSEQ for Windows Version 3.0
SEQ ID NO 230
LENGTH: 46
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LENGTH: 3401
TYPE: DNA
ORGANISM: Homo 9
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Best Local Similarity
Matches 14; Conser
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Best Local S
Matches 27
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                                                          APPLICANT:
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TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C227
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
Prior Application removed - See File Wrapper or NUMBER OF SEQ ID NOS: 612
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APPLICANT:
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                                                                                                                   Baker, Kevin P. Chen, Jian
                                                                                                                                                                                                                                                     CCACCTGGTCCTTCATGAAGAGCAGACACTTAGAGGCTGG
                                                       Desnoyers, Luc
Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
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Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
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Watanabe,Colin K.
Wood,William I.
                       Smith, Victoria
                                         Pan, James
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D. US20030068684A1
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o. US20030044930A1
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ilarity 35.0%;
Conservative
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58.7%;
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Pred. No. 3.6;
1; Mismatches 2!
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Pred. No. 8.6e-12;
; Mismatches 12
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APPLICANT:

Godowski, Paul Gurney, Austin Dan, James

Desnoyers, Luc Goddard, Audrey

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RESULT 10
US-10-184-634-453
; Sequence 453, Application US/10184634
; Publication No. US20030068684A1
; GENERAL INFORMATION:
; APPLICANT: Baker, Kevin P.
; APPLICANT: Chen, Jian
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                                                                                                                                                                                                                                                                                              ; ORGANISM: Homo Sapien US-10-184-644-453
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Best Local S
Matches 15
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LENGTH: 3401
TYPE: DNA
ORGANISM: Homo Sapien
US-10-184-634-411
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NUMBER OF SEQ ID NOS: 612
SEQ ID NO 453
LENGTH: 3781
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Best Local Similarity 35.0%;
Matches 14; Conservative
                                                                                                                                                                                                                                                                                                                                                                                   APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C227
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
Prior Application removed - See File Wrapper or Palm
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TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C217
CURRENT APPLICATION NUMBER: US/10/184,634
CURRENT FILING DATE: 2002-06-28
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                                                                                                                                                           2581
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                                                                                                                                                                                                                            | Similarity
                                                                                                                                                         CCGCTCGATC-ACCGAGGGTACCAGTCCCTGTCAGAC 2616
                                                                                                                                                                                          CCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKC 39
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Pred. No. 3.6;
1; Mismatches
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APPLICANT: Gurney, Austin L.

APPLICANT: Watanabe, Colin K.

APPLICANT: Watanabe, Colin K.

APPLICANT: Wood, William I.

TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3230R1C1
CURRENT APPLICATION NUMBER: US/10/063,685
CURRENT FILING DATE: 2002-05-08
CURRENT FILING DATE: 2002-05-08
NUMBER OF SEQ ID NOS: 170
SEQ ID NO 15
LENGTH: 2768
TYPE: DNA
CRGANISM: Homo Sapien
US-10-063-685-15
Sequence 155, Application US/1006368; Publication No. US20030180909A1; GENERAL INFORMATION:
APPLICANT: Eaton, Dan L.
APPLICANT: Filvaroff, Ellen
APPLICANT: Gerritsen, Mary E.
APPLICANT: Goddard, Audrey
APPLICANT: Godowski, Paul J.
APPLICANT: Grimaldi, Christopher J.
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US-10-063-685-155
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; ORGANISM: Homo
US-10-184-634-453
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Publication No.
GENERAL INFORMA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          APPLICANT: Wood, William I.

APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C217
CURRENT APPLICATION NUMBER: US/10/184,634
CURRENT FILING DATE: 2002-06-28
Prior Application removed - See File Wrapper or Palm NUMBER OF SEQ ID NOS: 612
SEQ ID NO 453
LENGTH: 3781
                                                                                                                                                                                                                                                                                                                Matches
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Best Local (
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APPLICANT: Filvaroff, Ellen
APPLICANT: Gerritsen, Mary E.
APPLICANT: Goddard, Audrey
                                                                                                                                                                                                                                                                                                                                Local
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Grimaldi, Christopher
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Watanabe, Colin K.
Wood, William I.
                                                                                                                               Application US/10063685
o. US20030180909A1
                                                                                                                                                                                                                                                                                                               Conservative
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                                                                                                                                                                                                                                                                                                            Score 75; DB 1
Pred. No. 6.4;
2; Mismatches
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Pred. No. 7
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Mismatches
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RESULT 14 US-10-184-634-289

Sequence 289, Application | Publication No. US20030068 | GENERAL INFORMATION | APPLICANT: Baker, Kevin P.

Application US/10184634 b. US20030068684A1

APPLICANT: APPLICANT: APPLICANT:

Desnoyers, Luc Goddard, Audrey Chen, Jian

APPLICANT:

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APPLICANT: Wood, William 1.
APPLICANT: Zhang, Zemin
APPLICANT: Zhang, Zemin
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POI
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C227
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
Prior Application removed - See File Wrapper or P
NUMBER OF SEQ ID NOS: 612
SEQ ID NO 289
LENGTH: 4842
TYPE: DNA
ORGANISM: Homo Sapien
US-10-184-644-289
28.4%; Score 73.5; DB 1
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US-10-184-644-289
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                                                            Query Match
Best Local Similarity
Matches 15; Conserv
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Best Local Similarity 35.7%;
Matches 15; Conservative
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APPLICANT:
APPLICANT:
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APPLICANT: Wood, William I.
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE
TITLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3230R1C1
CURRENT APPLICATION NUMBER: US/10/063,685
CURRENT FILING DATE: 2002-05-08
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                                CCRSTLGRNCYN-----LCRVRGAQKLCAGVCRCKLTSSGKCPTG
  CCCAGAGAGCTGTCCGCCCTCCGACACCTGACGCTTATTGACCTG
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Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
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Smith, Victoria
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                                                                  Conservative
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                                                                                28.4%;
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                                                              Score 73.5; D. Pred. No. 16; 3; Mismatches
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                                                              5; Gaps
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APPLICANT: Sutton, accounts APPLICANT: Watanabe, Colin K.

APPLICANT: Wood, William I.

APPLICANT: Wood, William I.

APPLICANT: Zhang, Zemin

TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC TITLE OF INVENTION: ACIDS ENCODING THE SAME

FILE REFERENCE: P3430R1C217

CURRENT APPLICATION NUMBER: US/10/184,634

CURRENT FILING DATE: 2002-06-28

Prior Application removed - See File Wrapper or Palm

NUMBER OF SEQ ID NOS: 612

SEQ ID NO 289

LENGTH: 4842

TYPE: DNA

ORGANISM: Homo Sapien

US-10-184-634-289
Search completed: January 21, 2004, 09:49:57 Job time : 33 secs
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APPLICANT: Zhang, Zemin;
TITLE OF INVENTION: SECRETED AND TRANSMEMBRANE POLYPEPTIDES AND NUCLEIC;
FILLE OF INVENTION: ACIDS ENCODING THE SAME
FILE REFERENCE: P3430R1C227
CURRENT APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
CURRENT FILING DATE: 2002-06-28
PATIOR APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
CURRENT FILING DATE: 2002-06-28
PATIOR APPLICATION NUMBER: US/10/184,644
CURRENT FILING DATE: 2002-06-28
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US-10-184-644-373
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Best Local Similarity 33.3%;
Matches 15; Conservative
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APPLICANT:
APPLICANT:
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                                                                                                                                                                                                             CCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPT 41
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Goddard, Audrey
Godowski, Paul J.
Gurney, Austin L.
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Watanabe, Colin K.
Wood, William I.
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Watanabe, Colin K.
Wood, William I.
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o. US20030044930A1
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Database
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Maximum DB
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Perfect score:
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Maximum Match 100%
Listing first 45 s
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Score
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2: /cgn2_6/ptodata/1/iaa/5B_COMB.pep:*

3: /cgn2_6/ptodata/1/iaa/6A_COMB.pep:*

4: /cgn2_6/ptodata/1/iaa/6B_COMB.pep:*

5: /cgn2_6/ptodata/1/iaa/PCTUS_COMB.pep:*

6: /cgn2_6/ptodata/1/iaa/backfiles1.pep:*
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      GenCore version (c) 1993 - 2004
               US-08-608-786-1
US-08-824-379-1
US-08-838-763-1
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US-08-838-763-7
US-08-838-763-7
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CORRESPONDENCE
ADDRESSEE: Pioneer H1-5-CL
ADDRESSEE: Pioneer H1-5-CL
ADDRESSEE: Pioneer H1-5-CL
CITY: Des Moines
STATE: Iowa
COUNTRY: United States of America
ZIP: 50309
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM FC Compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0, Ve:
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/608,786
FILING DATE:
CLASSIFICATION:
APTTORNEY/AGENT INFORMATION:
NAME: Simon, Soma G.
REGISTRATION NUMBER: 37,444
REFERENCE/DOCKET NUMBER: 456-US
TELEPHONE: 515-248-4896
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TELEPHONE: 515-248-4896
TELEPHONE: 515-248-4896
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TYPE: amino acids
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TITLE OF INVENTION: High Methionine Derivatives of
TITLE OF INVENTION: Alpha-Hordothionin for Pathogen-Control
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
ADDRESSE: Pioneer Hi-Bred International, Inc.
STREET: 700 Capital Square, 400 Locust Street
                                                                                                                                                                   th 100.0%; l Similarity 100.0%; 45; Conservative 0;
KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK
                                                                                                                                                                   Score 259; DB 1;
Pred. No. 2.5e-21;
Mismatches 0;
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Application US/08824379

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RESULT 3
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELEFAX: 515-248-4844
INFORMATION FOR SEQ ID NO: 1
SEQUENCE CHARACTERISTICS:
LENGTH: 45 amino acids
TYPE: amino acid
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                              Sequence 1, Application Patent No. 5885802
GENERAL INFORMATION:
APPLICANT: Rao, A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              ZIP: 50309
COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
OPERATING SYSTEM: PC-DOS/MS-DOS
                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
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TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-248-4896
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CURRENT APPLICATION DATA:
APPLICATION NUMBER: US
FILING DATE:
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PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
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CORRESPONDENCE ADDRESS:
ADDRESSEE: Pioneer Hi-Bred :
STREET: 700 Capital Square,
                                                                                                                                                                                                                                                                        APPLICANT: Rao, A. Gururaj
TITLE OF INVENTION: High Methionine Derivatives of
TITLE OF INVENTION: Alpha-Hordothionin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              NAME: Simon, Soma G.
REGISTRATION NUMBER: 37,
                                                                                                                                                                   STATE:
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APPLICATION NUMBER:
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O Capital Square, 400 Locust Street
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High Threonine Derivatives of
Alpha-Hordothionin
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| Square, 400 Locust Street
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IBER: 354-US
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                                                               INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
LENGTH: 45 amino acids
TYPE: amino acid
STRANDEDNESS: single
                                                                                                                                                                                                                                                                                                                                              APPLICATION NUMBER: US/08/838,763
FILING DATE: 10-APR-1997
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/003,885
FILING DATE: 13-JAN-1993
ATTORNEY/AGENT INFORMATION:
NAME: Michel, Marianne H
REGISTRATION NUMBER: 35,286
REFERENCE/DOCKET NUMBER: 0233C3
TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-334-4467
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INFORMATION FOR SEQ ID NO:
SEQUENCE CHARACTERISTICS:
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COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FASKSEQ FOR Windows Version
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        TITLE OF INVENTION: High Lysine Derivatives
TITLE OF INVENTION: Alpha-Hordothionin
NUMBER OF SEQUENCES: 9
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NAME: Simon, Soma G.
REGISTRATION NUMBER: 37,444
REFERENCE/DOCKET NUMBER: 35
TELECOMMUNICATION INFORMATION:
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                                   IOPOLOGY:
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3. 5990389
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TYPE:
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7100 NW 62nd Avenue, P.O. Box 1000
                                                                                                                                                                                                                                                                                                                    515-334-6883
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Beach,
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RESULT 6
US-08-838-763-2
; Sequence 2, Application US/08838763
; Patent No. 5990389
                                       Sequence 2, 590389; Patent No. 5990389; Patent No. FORMATION:
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US-08-838-763-
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Matches
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/838,763
FILING DATE: 10-APR-1997
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
OPERICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                    INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  GENERAL INFORMATION:
APPLICANT: Rao, A
                                                                                                                                                                                                                                                                                                          LENGTH: 45 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
                                                                                                                                                                                                                                                                                                                                                                                                                                                NAME: Michel, Marianne H
REGISTRATION NUMBER: 35,286
REFERENCE/DOCKET NUMBER: 02:
TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-334-4467
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: 08/003,885
FILING DATE: 13-JAN-1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      APPLICANT: Rao, A. Gururaj
APPLICANT: Beach, Larry
TITLE OF INVENTION: High Lysine Derivatives
TITLE OF INVENTION: Alpha-Hordothionin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                     TELEPHONE: 515-334-6883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Ö.
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). 5990389
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                                                                                                                                                                                                                               n 95.4%;
Similarity 91.1%;
41; Conservative
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              T: Rao, A. T: Beach, I INVENTION:
                                                                                                                                                                                                KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
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7100 NW. 62nd Avenue
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larity 100.0%;
Conservative 0
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Th, Larry
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Hig
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                                           Gururaj
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High Lysine Derivatives Alpha-Hordothionin
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                                                                                                                                                                                                                            Score 247; DB 2;
Pred. No. 4.8e-20;
4; Mismatches 0
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e, P.O. Box 1000
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Pred. No. 2.5e-21;
; Mismatches 0;
                                                                                                                                                                                                                                                           Length 45
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TELEFAX: 515-334-6883
TELEX:
INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 45 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
US-08-838-763-2
                                                                                                                                                                                                                                                                                                                                                                                                                         RESULT 7
US-08-838-763-7
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Matches
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Patent No. 5990389
GENERAL INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Query Match
        COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette
COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Ve
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/838,76
FILING DATE: 10-APR-1997
CLASSIFICATION: 000
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  OPERATING SYSTEM: DOS
SOFTWARE: FASTSEQ for Wind
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/
FILING DATE: 10-APR-1997
CLASSIFICATION: 800
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/003
FILING DATE: 13-DATA: 1993
ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                APPLICANT: Rao, A. G
APPLICANT: Beach, La
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-334-4467
TELEFAX: 515-334-6883
                                                                                                                                                                                                                                                           NUMBER OF SEQUENCES: 9
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    COMPUTER READABLE FORM:
MEDIUM TYPE: Diskett
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CORRESPONDENCE ADDRESS:
ADDRESSEE: Pioneer Hi
STREET: 7100 NW 62nd
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Local Similarity 88.9%;
nes 40; Conservative
                                                                                                                                                                                                     STREET: 7100 N
CITY: Johnston
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Michel, Marianne H
REGISTRATION NUMBER: 35,286
REFERENCE/DOCKET NUMBER: 02:
FILING DATE: 1
CLASSIFICATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             STREET: 7100 N
CITY: Johnston
STATE: IA
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                                                                                                                                                       50131
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7100 NW 62nd Avenue, P.O. Box 100
                                                                                                                                                                        USA
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                                                                                                                                                                                                                                                                                              High Lysine Derivatives Alpha-Hordothionin
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                                 US/08/838,763
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Pred. No. 1e-19;
; Mismatches
                                                                   Version
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08/003,885

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                                                                                                               US-08-608-786-2
                                                                                                                       INFORMATION FOR SEQ ID NO: 2
SEQUENCE CHARACTERISTICS:
LENGTH: 45 amino acids
TYPE: amino acid
                          Query Match
Best Local Similarity 84.3
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Best Loc
Matches
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Patent No. 5703
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                                                                                                                                                                                                    ATTORNEY/AGENT INFORMATION:
NAME: Simon, Soma G.
REGISTRATION NUMBER: 37,444
REFERENCE/DOCKET NUMBER: 456-
TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-248-4896
TELEFAX: 515-248-4844
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       APPLICANT: Rao, A. G
TITLE OF INVENTION:
TITLE OF INVENTION:
NUMBER OF SEQUENCES:
                                                                                                                                                                                                                                                                                                                                                                COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
SOFTWARE: PatentIn Release #1.0,
CURRENT APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CORRESPONDENCE ADDRESS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      TELECOMMUNICATION INFORMATION: TELEPHONE: 515-334-4467
TELEFAX: 515-334-6883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            MOLECULE TYPE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: 08/0 FILING DATE: 13-JAN-1993 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           STRANDEDNESS:
TOPOLOGY: li
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     REGISTRATION NUMBER: 35
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          ADDRESSEE:
                                                                                                                                                                                                                                                                                                                                                   APPLICATION NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            CITY: Des Moines
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Local
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KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Iowa
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      3: Pioneer Hi-Bred International, Inc. 700 Capital Square, 400 Locust Street
                                                                                                                                                                                                                                                                                                                                                                                                                                                                               United States
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f
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                                                 Score 231; DB 1;
Pred. No. 2.4e-18;
; Mismatches 3
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Pred. No. 9.1e-19;
1; Mismatches 2
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RESULT 9
US-08-824-382-2
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Matches
                                                                                                                                                                                                               Sequence 8, Application US/08838763
Patent No. 5990389
GENERAL INFORMATION:
APPLICANT: Rao, A. Gururaj
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Patent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 45 amino acids
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-DOS
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         APPLICANT: Rao, A. Gururaj
TITLE OF INVENTION: High Methionine Derivatives
TITLE OF INVENTION: Alpha-Hordothionin
NUMBER OF SEQUENCES: 3
CORRESPONDENCE ADDRESS:
ADDRESSEE: Pioneer Hi-Bred International, Inc.
STREET: 700 Capital Square, 400 Locust Street
CITY: Des Moines
                                                                                                                               NUMBER OF SEQUENCES: SCORRESPONDENCE ADDRESS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     NAME: Simon, Soma G.
REGISTRATION NUMBER: 37,444
REFERENCE/DOCKET NUMBER: 35
TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-248-4896
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ATTORNEY/AGENT INFORMATION:
NAME: Simon. Soma G
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        CLASSIFICATION:
PRIOR APPLICATION DATA:
APPLICATION NUMBER:
FILING DATE:
                                                                                                                                                                APPLICANT: Rao, A. G
APPLICANT: Beach, La
TITLE OF INVENTION:
TITLE OF INVENTION:
COMPUTER READABLE FORM: MEDIUM TYPE: Diskette
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         SOFTWARE: PatentIn Rel
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TYPE: ami
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                                                                                                    STREET:
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                                                                                                                   ADDRESSEE:
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). 5885802
                                                                                                                                                                                                                                                                                                                                                                                                                    ch 89.2%;
L Similarity 84.4%;
38; Conservative
                                    50131
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                                                                                Johnston
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GY: linear
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                                                                                                    7100 NW
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                                                                                                                 Pioneer Hi-Bred
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                                                                                                                                                                  High Lysine Derivatives Alpha-Hordothionin
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Pred. No. 2.4e-18;
4; Mismatches
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                                                                                                   International,
e, P.O. Box 1000
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                                                                                                                   Inc
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SOFTWARE: FastSEQ for Windows Version CURRENT APPLICATION DATA:

DATA:

OPERATING SYSTEM:

IBM Compatible

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RESULT 11
US-08-719-500-1
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INFORMATION FOR SEQ ID NO: 8:
SEQUENCE CHARACTERISTICS:
LENGTH: 45 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; MOLECULE TYPE: US-08-838-763-8
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Patent No.
GENERAL IN
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Matches
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ATTORNEY/AGENT INFORMATION:
NAME: Michel, Marianne H
REGISTRATION NUMBER: 35,286
REFERENCE/DOCKET NUMBER: 0233
TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-334-4467
TELEFAX: 515-334-6883
                                   CLASSIFICATION: 800
ATTORNEY/AGENT INFORMATION:
NAME: SIMON, Soma G.
REGISTRATION NUMBER: 37,444
REFERENCE/DOCKET NUMBER: 0473
TELECOMMUNICATION INFORMATION:
                                                                                                                                      OPERATING SYSTEM: MS-DOS, Microsoft Windows SOFTWARE: Microsoft Windows No. 6080913epad CURRENT APPLICATION DATA: APPLICATION NUMBER: US/08/719,500 FILING DATE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                 TITLE OF INVENTION:
TITLE OF INVENTION:
TITLE OF INVENTION:
                                                                                                                                                                                                                                           COMPUTER READABLE FORM:
MEDIUM TYPE: Diskette, 3.5 in
MEDIUM TYPE: 1.44 Mb storage
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/003,885
FILING DATE: 13-JAN-1993
                                                                                                                                                                                                                                                                                                                                                                                                                   CORRESPONDENCE ADDRESS:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       CLASSIFICATION:
                       TELEPHONE:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  38;
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38; Conservative
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5: (515)
(515) 33
                                                                                                                                                                                                                                                                                                                                                                  3: Pioneer Hi-Bred International,
7100 N.W. 62nd Avenue
Post Office Box 1000
                                                                                                                                                                                                                                                                                                                 United States of America
                                                                                                                                                                                                                           IBM Compatible
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    334-6883
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A BINARY METHOD OF
INCREASING ACCUMULATION OF ESSENTIAL AMINO
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US-08-838-763-4
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US-08-838-763-4
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                                                         Best Loc
Matches
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                                                                                                                                                                                                                                                                                                                                     COMPUTER: IBM Compatible
OPERATING SYSTEM: DOS
SOFTWARE: FastSEQ for Windows Version 2.
CURRENT APPLICATION DATA:
APPLICATION NUMBER: US/08/838,763
FILING DATE: 10-APR-1997
CLASSIFICATION B00
PRIOR APPLICATION DATA:
APPLICATION NUMBER: 08/003,885
FILING DATE: 13-JAN-1993
ATTORNEY/AGENT INFORMATION:
NAME: Michel Marianne H
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Patent No. 5990389
GENERAL INFORMATION:
APPLICANT: Rao, A
                                                                                   Query Match
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Query Match
Best Local (
                                                                                                                                                                                              INFORMATION FOR SEQ ID NO: SEQUENCE CHARACTERISTICS: LENGTH: 45 amino acids
                                                                                                                                                                                                                                                         NAME: Michel, Marianne H
REGISTRATION NUMBER: 35,286
REFERENCE/DOCKET NUMBER: 0233
TELECOMMUNICATION INFORMATION:
TELEPHONE: 515-334-4467
TELEPAX: 515-334-6883
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       LENGTH: 45 amino acids
TYPE: amino acid
STRANDEDNESS: single
TOPOLOGY: linear
MOLECULE TYPE: protein
DESCRIPTION: hordothioni
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MEDIUM TYPE: Diskette
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TOPOLOGY: li
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                                                        ch 86.9%; l Similarity 86.7%; 39; Conservative
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38; Conservative
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              KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
                                                                                                                                   TYPE:
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linear
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hordothionin derivative
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Alpha-Hordothionin
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                                                         Score 225; DB 2; )
Pred. No. 1.1e-17;
4; Mismatches 2;
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US-07-973-852-1
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LEGITER: IBM PC compatible operating system: PC-DOS/MS-DOS SOFTWARE: Patentin Release #1.0, V.

CURRENT APPLICATION DATA:

APPLICATION NUMBER: US/07/972 CLASSIETT.
                                                                                                                                                                                                               Matches
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PRIOR APPLICATION DATA:
APPLICATION NUMBER: US 07/631,321
FILING DATE: 20-DEC-1990
PRIOR APPLICATION DATA:
APPLICATION NUMBER: JP 332884/1989
FILING DATE: 25-DEC-1989
PRIOR APPLICATION DATA:
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                        TELEX: 248855 (INFORMATION FOR SEQ
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: JP 75600/1990 FILING DATE: 27-MAR-1990 PRIOR APPLICATION DATA:
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           APPLICATION NUMBER: JP 194782/1990 FILING DATE: 25-JUL-1990 ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                        NAME: Oblon, No. 5376640man REGISTRATION NUMBER: 24,618 REFERENCE/DOCKET NUMBER: 132 TELECOMMUNICATION INFORMATION: TELEPHONE: (703)521-4500
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ADDRESSEE:
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E CHARACTERISTICS
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T: 1755 Jefferson Davis Highway,
Arlington
: Virginia
RY: U.S.A.
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                                                             application US/07950773
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Miyazaki, Toshiyuki
Motoi, Hirofumi
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a, Hiromichi
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Pred. No. 1.3e-17;
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US-07-973-852-2
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; MOLECULE TYPE:
US-07-950-773-1
                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                        Query Match
Best Local Similarity
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                                                                                                                                                                                                                                                                                      tent No.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  COMPUTER READABLE FORM:
MEDIUM TYPE: Floppy disk
COMPUTER: IBM PC compatible
OPERATING SYSTEM: PC-DOS/MS-
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            SEQUENCE CHARACTERISTICS:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       TELECOMMUNICATION INFORMATION: TELEPHONE: (703)521-4500
TELEFAX: (703)486-2347
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               ATTORNEY/AGENT INFORMATION:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            APPLICATION NUMBER: US
FILING DATE: 19920924
CLASSIFICATION: 530
PRIOR APPLICATION DATA:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     SOFTWARE: PatentIn Release #1.0, CURRENT APPLICATION DATA:
                                                                                                                                   TITLE OF INVENTION: LI
NUMBER OF SEQUENCES: 7
CORRESPONDENCE ADDRESS:
COMPUTER READABLE FORM: MEDIUM TYPE: Floppy disk
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NAME: Oblon, No. 541195
REGISTRATION NUMBER: 24
REFERENCE/DOCKET NUMBER:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               APPLICATION NUMBER: US/0 FILING DATE: 20-DEC-1990
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LE OF
                                                                                                      DDRESSEE
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                                          SSEE: P.C.
T: 1755 Jefferson Davis Highway,
Arlington
: Virginia
RY: U.S.A.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               : 45 amino acids
AMINO ACID
                                                                                                                                                                                                                                                                                                                                                                                                            KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK
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                                                                                                                                      Tsujita, Takamana
Okuda, Hiromichi
Okuta, Hiromichi
VENTION: LIPOLYTIC ENZYME INHIBITORS
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Kodama, ...
Taturo
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         ADDRESS:
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ca, Takahiro
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ER: 24,618
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Pred. No. 1.3e-1
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COMPUTER: IBM PC compatible
COMPUTER: Dec DOS/MS-DOS
CURRENT APPLICATION DATA:
APPLICATION NUMBER: DS/07/973,852
FILING DATE:
CHASSIFICATION NUMBER: US/07/973,852
FILING DATE:
APPLICATION NUMBER: US/07/631,321
FILING DATE: 20-DBC-1990
PRIOR APPLICATION NUMBER: US/07/631,321
APPLICATION NUMBER: US/07/631
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Minimum
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1: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1980.DAT:*
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18: /SIDS1/gcgdata/geneseq/geneseqp-embl/AA1999.DAT:*
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                                                                                                                                                                                                        DB
         AAP10385
AAP50480
AAR60045
AAW41689
AAR60047
AAR60046
AAR26858
AAR26858
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Antitumour agent f
Cytostatic polypep
Alpha-hordothionin
Wild type barley a
Alpha-hordothionin
Alpha-hordothionin
Antifungal peptide
Alpha-hordothionin
Antifungal peptide
                                                                                                                                                                                                    Description
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בווסד מתפוותד סוו בוודטוו	AAC2/44/	4	4		
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Viscotoxin B thion	AAU97425	23	46	4.	114.5
cotoxin A2	AAU97426	23	46		115.5
Viscotoxin A3 thio	AAU97424	23	46	4.	115.5
ularia pube	AAW09616	18		56.4	146
aria	AAU97423	23	47	•	146
ed thi	AAW09638	17	137		ŧπ
derived	AAW09637	17		φ.	(n
cancer	ABU59644	24		4.	$\mathbf{\Phi}$
ionic	AAY91766	21	46	64.3	166.5
ic peptide	AAW66467	19		Α.	Φ
nor	AAW10162	18	45	U	169
Alpha-	AAR60053	S		'n	169
Alpha-hordothi	AAW10165			•	170
Methic	AAW41691	9		0	182
	AAW10164	18		0	182
	AAW15300	18	45	-	184
	AAW10166	18	45	77.2	200
Generic	AAP10124	N	<u>4</u> 5	.7	200
	AAR60050	15	<u>4</u> 5	Φ	202
Alpha-	AAR60049	15	45		209
Anticancer compsn.	AAP10419.		45	ν.	213
Antifungal peptide	AAR26861		45		214
-purothioni	AAR12498	12	45	82.6	214
Alpha2-purothionin	AAR12497			ν.	214
Sequence of antitu	AAP10125		4.	ν.	214
Wheat thionin pept	AAE34437			<u>.</u>	224
Alphal-purothionin	AAR12496			9	224
er comp	AAP10420			٠ ص	224
Sequence of antitu	AAP10126			9	N
dothi	AAR60048		<u>4</u> 5	თ	
gal	AAR26860			<u>ი</u>	N
ine subs	AAW41690			9	w
sine	AAW58555			9	231
othi	AAW10163		45	φ.	w
Alpha-hordothionin	AAR60052	15	45	9	231

ALIGNMENTS

25-MAR-2003 10-MAR-2003 17-DEC-1992

(updated)
(updated)
(first entry)

Antitumour

agent from barley

or wheat

180A;

AAP10385;

AAP10385 standard; protein; 45

3

antitumour; cancer; Ehrlich's ascites carcinoma; lymphocytic leukaemia L1210; triticum monococcum; hordeum agriocrithon; hordeum spontaneum.

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Disulfide-bond
Disulfide-bond
Disulfide-bond
Disulfide-bond
    29-SEP-1979;
                    02-MAY-1981.
                            JP56049342-A.
            29-SEP-1979;
                                                            Unidentified.
                                    Location/Qualifiers
3..39
4..31
12..29
16..25
    79JP-0126024
            79JP-0126024.
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RESULT 2
AAP50480
ID AAP5
XX AAP5
XX AAP5
XX AAP5
XX Cyt
XXX Cyt
PT Di
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Disulfide-bond
Disulfide-bond
Disulfide-bond
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      This sequence represents an antitumour agent, abundant in wheat and barley. It is effective in the inhibition of the growth of transformed cells (released from contact inhibition) in a tissue culture test using mouse cell PV4. It is also effective against Ehrlichs ascites carcinoma , Sarcoma 180A, and lymphocyte leukaemia
                                           The sequence encodes cycostatic polypeptide against sarcomas, Ehrlich ascites carcinome
                                                                                                                                         Inhibiting growth of transplanted polypeptide SPH obtd. from cereals chromatography etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                             US4497799-A.
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                                                                                                                                                                                                                         WPI; 1985-049834/08
                                                                                                                                                                                                                                                                                                                                            09-NOV-1981;
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                                                                                                                                                                                                                                                               Yoshizumi
                                                                                                                                                                                                                                                                                                                                                                                  09-NOV-1981;
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l Similarity 100.0%;
45; Conservative 0
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on 25-MAR-2003
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                                                                                                    6; 6pp;
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                                                                                                                                                                                                                                                               Toyoshima
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                                                                                               English.
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correct PA field.)
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Pred. No. 2.4e-20;
; Mismatches 0;
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s by solvent
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                                            SPH, which and leukemi
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RESULT 4
AAW41689
ID AAW4
XX
AC AAW4
XX
DT 01-M
XX
DE Wild
XX

AAW41689; AAW41689;

standard;

protein;

4,

A A

01-MAY-1998

(first

entry)

type

barley

alpha-hordothionin

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Best Local S
Matches 45
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Best Local Similarity
Matches 45; Conserv
                                                                                                 Lysine-rich alpha-hordothionin has powerful antifungal perivatives of alpha-hordothionin (given in AAR60046-53) position-specific substitution with lysine residues, proimproved resistance to fungal pathogens when expressed itransgenic dicot or monocot plants. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                         Alpha-hordothionin; lysine; antifungal; antimicrobial; fungus resistance; disease resistance; crop improvement crop protection; transgenic plant.
                                                                                                                                                                                                                            WPI;
                                                                               Sequence
                                                                                                                                                                        Disclosure; Page 16; 27pp; English.
                                                                                                                                                                                            Derivatives of alpha hordothionin - I retain antifungal activity of parent
                                                                                                                                                                                                                                                Beach
                                                                                                                                                                                                                                                                                        13-JAN-1993;
                                                                                                                                                                                                                                                                                                           12-JAN-1994;
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                                                                                                                                                                                                                                                                                                                                                                       Hordeum vulgare.
                                                                                                                                                                                                                                                                                                                                                                                                                                    Alpha-hordothionin
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16-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       AAR60045;
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                                                                                                                                                                                                                                                                   (PION-)
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Similarity 100.0%;
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             KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFFK
 KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK
                                                                               45 AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 100.0%; ilarity 100.0%; Conservative 0
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(first en
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                                                                                                                                                                                                                                                                                                          94WO-US00382
                                                                                                                                                                                                                                                Rao
                                                                                                                                                                                                                                                                                                                                                                                         resistance; crop improvement; plant.
                                        0
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Pred. No. 2.4e-20;
; Mismatches 0;
                                       Score 259; DB 15;
Pred. No. 2.4e-20;
; Mismatches 0;
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RESULT 5
AAR60047
XX AAR6
XX AAR6
XX AAR6
XX 16-F
DT 16-F
XX Alph
XX Alph
KW Alph
KW Crop
XX Crop
XX Crop
XX AR6
X
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Best Local S
Matches 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Killing and inhibiting phytopathogenic microorganisms, which are susceptible to alpha-hordothionin, comprises introducing into the environment of the microorganisms the protein AAW41691, in which at least 1 of the amino acid residues at positions 1, 5, 8, 11, 15, 17, 18, 19, 22, 23, 24, 30, 32, 33, 38 and 41 is replaced by methionine, and the remainder of the residues at those positions care the residues at the corresponding positions in the protein C AAW41689, e.g. AAW41690. The method may be used to improve feed formulations, where derivatives of alpha-hordothionin are added to provide higher percentages of the essential amino acid methionine in plants, while retaining the anti-pathogenic functionality of bordothionins. Alpha-Hordothionins may be expressed to simultaneously enhance both resistance to plant pathogens, and methionine content in plants.
                                                                                                                                                                                         Alpha-hordothionin; fungus resistance; crop protection; tr
 12-JAN-1994;
                                                                                                                                               Hordeum
                                                                                                                                                                                                                                                                                               Alpha-hordothionin
                                                                                                                                                                                                                                                                                                                                               25-MAR-2003
16-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AAR60047
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Rao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          29-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       30-DEC-1997.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           US5703049-A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Hordeum
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Phytopathogenic essential amino
                                                                                                W09416078-A1
                                                                                                                                                                                                                                                                                                                                                                                                                        AAR60047;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Killing and expressing
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         WPI; 1998-076460/07.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         29-FEB-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Claim
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      improving plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           (PION-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         <u>,</u>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            100.0%;
1 Similarity 100.0%;
45; Conservative 0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                and inhibiting phytopathogenic microorganisms ing methionine rich alpha-hordothionin, useful ng plant feed formulations
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      vulgare
                                                                                                                                               vulgare
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         PIONEER HI-BRED INT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Columns 7-8; 6pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               4
5
                                                                                                                                                                                                                                                                                                                                             (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96US-0608786
   94WO-US00382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         96US-0608786.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     microorganism; alpha-hordothionin;
acid methionine; feed formulation;
                                                                                                                                                                                             transgenic
                                                                                                                                                                                         ; lysine; antifungal; disease resistance; ransgenic plant.
                                                                                                                                                                                                                                                                                               derivative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                   protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Score 259; DB 19;
Pred. No. 2.4e-20;
; Mismatches 0;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A
                                                                                                                                                                                                                    crop improvemen
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Length
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 barley;
anti-pathogenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        in,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             45;
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RESULT 6
AAR60046
ID AAR6
XX A
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Query Match
Best Local S
Matches 41
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Lysine-rich alpha-hordothionin has powerful antifungal properties. Derivatives of alpha-hordothionin (given in AAR60046-53), made by position-specific substitution with lysine residues, provide improved resistance to fungal pathogens when expressed in transgenic dicot or monocot plants. Substitution of amino acids 5, 17 and 19 of the wild-type sequence (AAR60045) with Lys gave the protein given in AAR60047. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Derivatives of alpha hordothionin - I retain antifungal activity of parent
                                                                                        Disclosure;
                                                                                                                                 Derivatives of alpha hordothionin - lretain antifungal activity of parent
                                                                                                                                                                                                     WPI; 1994-249225/30
                                                                                                                                                                                                                                                                                                                                   13-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                12-JAN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                       WO9416078-A1.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Hordeum vulgare.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         fungus resistance crop protection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alpha-hordothionin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Alpha-hordothionin derivative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              25-MAR-2003
16-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  AAR60046;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           AAR60046
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Disclosure;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Beach LR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       (PION-) PIONEER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                13-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                1994-249225/30
                                                                                                                                                                                                                                              LR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          resistance; disease cotection; transgenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                41;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  \vdash
                                                                                                                                                                                                                                                                                         PIONEER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            h 95.4%;
Similarity 91.1%;
41; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       KSCCKSTLGRNCYNLCKVKGAQKLCAGVCKCKLTSSGKCPTGFPK
                                                                                                                                                                                                                                                Rao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     45
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                                                                                       Page 16-17;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Page 17; 27pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              (updated)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AA;
                                                                                                                                                                                                                                              AG,
                                                                                                                                                                                                                                                                                                                                     93US-0003885
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                                                                                                                                                                                                                                                                                                                                                                                 94WO-US00382
                                                                                                                                                                                                                                                                                          HI-BRED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       ; lysine; antifungal; antimicrobial; disease resistance; crop improvement; ransgenic plant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Rao
                                                                                   27pp;
                                                                                                                                                                                                                                              A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             ×
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              .<u>4</u>.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Score 247; DB 15;
Pred. No. 4.4e-19;
4; Mismatches 0;
                                                                                     English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Ã
                                                                                                                                   have high
t compound
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              have high
                 antifungal pa
AAR60046-53),
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                                                                                                                                                        tent, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       45;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    tent, and
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Gaps
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Lysine-rich alpha-hordothionin has powerful Derivatives of alpha-hordothionin (given in position-specific substitution with lysine 1

pro

properties. , made by bvide

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RESULT 7
AAR26858
ID AAR2
XX AAR2
AC AAR2
XX AAR2
AC A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           8888888
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Best Local S
Matches 40
                                                                                                                                           The peptides given in AAR26850-61 have been shown to have potent cantimicrobial activity against many common pathogens. They are particularly effective against fungal pathogens. These peptides can be effectively applied to plants afflicted by susceptible microorganisms or they can be incorporated systematically into the clissues of a treated plant so that the infecting microbes are exposed to the pathogens in the course of the infection. This may be done by incorporating the peptides into a non-phytotoxic vehicle adapted for systematic administration to the susceptible plants or by isolating the genes encoding them, inserting the genes into an appropriate expression cassette and using this to insert the gene of interest into the genome of the plant.

(C) (Updated on 25-MAR-2003 to correct PN field.)
Query Match
Best Local S
Matches 43
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    improved resistance to fungal pathogens when expressed in transgenic dicot or monocot plants. Substitution of amino acids 5, 10, 19 and 30 of the wild-type sequence (AAR60045) gave the protein given in AAR60046.
(Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Treatment of bacterial and fungal infections - using synthetic proteins e.g. adrenocorticotropic hormone, poly-L-arginine, mastoparan, kassinin etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         04-MAR-1991;
                                                                                                     Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Disclosure; Table 4; 21pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             WPI; 1992-302013/37.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            09-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              EP502718-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  expression
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11-FEB-1993
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Antifungal
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             AAR26858
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     (PION-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   40;
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Similarity 88.9%;
40; Conservative
  h 93.8%;
Similarity 95.6%;
43; Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     PIONEER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 standard;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    ial peptide; cassette.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Rood
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               peptide #9
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(first entry)
                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     HI-BRED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             peptide;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           non-phytotoxic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 4.
U
    <u>.</u>
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Pred. No. 9.1e-19;
5; Mismatches 0
  Score 243; DB 13;
Pred. No. 1.2e-18;
D; Mismatches 2;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               vehicle;
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                                                   Length 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Indels
      Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                magainin,
                                                                                                                                                                                                             appropriate
e of interest into
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             pathogen;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               with Lys
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>,</u>
      0
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <u>,</u>
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RESULT 8
AAR60051
ID AAR6
XX AAR6
AC AAR6
XX AAR6
AC AAR6
XX AAR6
XX AAR6
AC AAR6
XX AAR6
AC AAR6
XX AAR6
AC CC Lysi
CCC Lysi

RESULT 9
AAR26859
ID AAR2
XX AAR2
AC AAR2
XX DT 25-M
DT 11-F
XX DE Anti
XX Anti
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      유
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                                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 39
                                                                                    25-MAR-2003
11-FEB-1993
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Lysine-rich alpha-hordothionin has powerful antifungal proposition-specific substitution with lysine residues, providimproved resistance to fungal pathogens when expressed in transgenic dicot or monocot plants. Substitution of amino acids 5, 11, 17, 19, 30 and 41 of the wild-type sequence (AAR60045) with Lys gave the protein given in AAR60051. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hordeum vulgare.
                                                                                                                                                        AAR26859;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      Derivatives of alpha hordothionin - l retain antifungal activity of parent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            WPI; 1994-249225/30.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      crop protection;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            fungus resistance;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alpha-hordothionin;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Alpha-hordothionin derivative.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         25-MAR-2003
16-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Disclosure; Page 19; 7pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             13-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        12-JAN-1994;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WO9416078-A1
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AAR60051;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         AAR60051 standard;
                                           Antifungal
                                                                                                                                                                                                       AAR26859
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    (PION-) PIONEER HI-BRED
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     LR,
                                                                                                                                                                                                                                                                                                                                                          Ľ
                                                                                                                                                                                                                                                                                                                                                                                                       Similarity 39; Conserv
                                                                                                                                                                                                                                                                                                                                           KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFFK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK
                                                                                                                                                                                                     standard; peptide;
                                                                                                                                                                                                                                                                                                             KSCCKSTLGRKCYNLCKVKGAQKLCAGVCKCKLTSSGKCPKGFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGLCPTGKPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rao
                                         peptide
                                                                                                                                                                                                                                                                                                                                                                                                   90.7%;
nilarity 86.7%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              4,
                                                                                       (updated)
(first en
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     AG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               93US-0003885
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          94WO-US00382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      transgenic plant
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          disease
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       protein;
                                            #10
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Rao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          lysine; antifungal;
lisease resistance;
                                                                                      entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      INT
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       A;
                                                                                                                                                                                                       4
0
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          4
                                                                                                                                                                                                                                                                                                                                                                                                       Score 235; DB 15;
Pred. No. 8.1e-18;
1; Mismatches 2
                                                                                                                                                                                                       A
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         B
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        have high
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              crop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   antimicrobial;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       \hat{c}
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              lysine
                                                                                                                                                                                                                                                                                                                                                                                                        2
                                                                                                                                                                                                                                                                                                                                                                                                                                              Length
                                                                                                                                                                                                                                                                                                                                                                                                        Indel
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ntent, and
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                                                                                                                                                                                                                                                                                                                                                                                                                                                       4
5
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Antimicrobial peptide; non-phytotoxic vehicle;

fungal

pathogen;

0;

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RESULT 10
AAR60052
ID AAR60
XX
AC AAR60
XX
DT 25-MA
DT 16-FE
XX
ALPha
KW Alpha
KW Fungu
KW Grop
XX
Horde
XX
BD HOrde
XX
BD 21-JI
XX
PF 12-JI
XX
AAR60
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                                                                                                                                                                                                                                                                                                                                                                                     Query Match
Best Local S
Matches 40
                                                                                                                                                                                                                                                                                                                                                                                                                                                          antimicrobial activity against many common pathogens. They are particularly effective against fungal pathogens. These peptides can be effectively applied to plants afflicted by susceptible microorganisms or they can be incorporated systematically into the tissues of a treated plant so that the infecting microbes are exposed to the pathogens in the course of the infection. This may be done by incorporating the peptides into a non-phytotoxic vehicle adapted for systematic administration to the susceptible plants or by isolating the genes encoding them, inserting the genes into an appropriate expression cassette and using this to insert the gene of interest into the genome of the plant.

(Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                      Alpha-hordothionin; fungus resistance;
                                                                                                                                                                                                                                                                                                                                                                                                                                    Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    The peptides given antimicrobial activ
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Treatment of bacterial and fungal infections synthetic proteins e.g. adrenocorticotropic bely-L-arginine, mastoparan, kassinin etc.
                                                                            WO9416078-A1
                                                                                                  Hordeum vulgare.
                                                                                                                                                                                                      25-MAR-2003
16-FEB-1995
                                                                                                                                                                                                                                            AAR60052;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 04-MAR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          04-MAR-1992;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           EP502718-A1.
                          12-JAN-1994;
                                                  21-JUL-1994.
                                                                                                                                                                              Alpha-hordothionin
                                                                                                                                                                                                                                                                     AAR60052
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Disclosure; Table 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Duvick J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   09-SEP-1992
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    Synthetic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            expression
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (PION-) PIONEER HI-BRED
                                                                                                                            protection;
                                                                                                                                                                                                                                                                                                                                   μ
                                                                                                                                                                                                                                                                                                                                                                                    . Similarity 40; Conser
                                                                                                                                                                                                                                                                                                                                                 KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
                                                                                                                                                                                                                                                                     standard;
                                                                                                                                                                                                                                                                                                                                    KSCCRSTLGRNCYNLCRVRGAQKLCANACRCKLTSGLKCPSGFPK
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Rood
                                                                                                                                                                                                                                                                                                                                                                                                                                       4.
U
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             cassette
                                                                                                                                                                                                                                                                                                                                                                                   89.2%;
larity 88.9%;
Conservative
                                                                                                                                                                                                     (updated)
(first entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                       AA;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 91US:
  588E000-SDE6
                          94WO-US00382
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          92EP-0301868
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               H;
                                                                                                                           e; disease resista
transgenic plant.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        in AAR26850-61 have been shown to have vity against many common pathogens. These petive against fungal pathogens. These pe
                                                                                                                                                                                                                                                                    protein;
                                                                                                                                                                              derivative
                                                                                                                                                   lysine;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          21pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INI
                                                                                                                                        resistance;
                                                                                                                                                    antifungal;
                                                                                                                                                                                                                                                                                                                                                                                   Score 231; DB 13;
Pred. No. 2.1e-17;
1; Mismatches 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         INC
                                                                                                                                                                                                                                                                     4.
U
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                                                                                                                                        crop
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               g - using
hormone,
                                                                                                                                                                                                                                                                                                                                                                                                         Length 45;
                                                                                                                                                                                                                                                                                                                                                                                    Indels
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                magainin,
                                                                                                                                                                                                                                                                                                                                  4.5
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     They are
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             and
                                                                                                                                                                                                                                                                                                                                                                                    Gaps
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RESULT 11
AAW10163
ID AAW10
XX AAW10
XX AAW10
XX AAW10
XX AAW10
DE Alpha
XX AAIMA
CC AAIMA
CC
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Ś
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 Query Match
Best Local S
Matches 38
The present sequence is an example of a methionine rich n hordothionin amino acid sequence. The protein contains a residue at positions 8, 11, 15, 18, 22, 33, and 41, replay the residue of the surface positions 8, 15, and 33, position 18), and the surface polar residues (asparagine glutamine at position 22 and threonine at position 41). The synthesised by solid phase peptide synthesis and folds in
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      31-MAY-1996;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          Hordeum vulgare Synthetic.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                AAW10163 standard; protein;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Lysine-rich alpha-hordothionin has powerful antifungal properivatives of alpha-hordothionin (given in AAR60046-53), position-specific substitution with lysine residues, proving resistance to fungal pathogens when expressed in transgenic dicot or monocot plants. Substitution of amir acids 5, 11, 17, 19, 22, 30 and 41 of the wild-type seque (AAR60045) with Lys gave the protein given in AAR60052. (Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                        Claim 5;
                                                                                                                                                                                                                                  New modified alpha-hordothionin having substns. - to increase the methionine
                                                                                                                                                                                                                                                                                                                                                                                                                                           02-JUN-1995;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  05-DEC-1996.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         Alpha-hordothionin
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    AAW10163;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          15-JUL-1997
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Derivatives of alpha hordothionin - l
retain antifungal activity of parent
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                WO9638563-A1.
                                                                                                                                                                                                                                                                                                                                                                                               (PION-)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            (PION-) PIONEER HI-BRED
                                                                                                                                                                                                                                                                                                                                                 GA;
                                                                                                                                                                                                                                                                                                     1997-034376/03
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                LR,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 feed;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Similarity 38; Conserv
                                                                                                                                                                                                                                                                                                                                                                                                 PIONEER
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK
                                                                                                                                                                                    Page 11; 21pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Rao AG,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     89.2%;
larity 84.4%;
Conservative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     Page 19-20;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 food;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         (first
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 ĀĀ;
                                                                                                                                                                                                                                                                                                                                                                                                                                           95US-0460440
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        96WO-US08220
                                                                                                                                                                                                                                                                                                                                                                                                 HI-BRED INT INC
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               barley
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         high methionine
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  Rao
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       entry)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   7pp; English.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                Þ
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Pred. No. 2.1e-17;
5; Mismatches 2
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Best Local S
Matches 38
                                                                                                 Query Match
Best Local Similarity
Matches 38; Conser
                                                                                                                                                                                                                                                 The present sequence represents a high lysine derivative of alpha-hordothionine, used in an example of the present invention for its expression in maize photosynthetic organs. The present invention describes plants, which express an altered composition or quantity (i.e. increased yield) of a vegetative storage protein, which are genetically modified to have a higher yield than the wild-type by: (a) expressing a transgene encoding a target amino acid sequence (T) in an organ or tissue of the plant other than the seed; and (b) accumulating (T) in the organ or tissue. The transgenic plants are engineered to express an increased amount of a protein containing an increased amount of an essential amino acid in the seed. The seed can then be used as a fodder amino acids: method is especially useful for the production of essential method is especially useful for the production of essential amino acids: methionine, cysteine, threonine and lysine; which are needed for animal nutrition but are often limited in crops.
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Similarity 84.4%;
38; Conservative
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                           KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
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larity 84.4%;
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                                                                                               Score 231; DB 19;
Pred. No. 2.1e-17;
5; Mismatches 2;
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Pred. No. 2.1e-17;
4; Mismatches 3;
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RESULT 13
AAW41690
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XX AAW41
XX AAW41
XX Phyt
RESULT 14
AAR26860
ID AAR26
XX
AC AAR26
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AC AAR26
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DT 25-M2
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            Killing and inhibiting phytopathogenic microorganisms, which are susceptible to alpha-hordothionin, comprises introducing into the environment of the microorganisms the protein AAW41691, in which at least 1 of the amino acid residues at positions 1, 5, 8, 11, 15, 17, 18, 19, 22, 23, 24, 30, 32, 33, 38 and 41 is replaced by methionine, and the remainder of the residues at those positions are the residues at the corresponding positions in the protein AAW41689, e.g. AAW41690. The method may be used to improve feed formulations, where derivatives of alpha-hordothionin are added to provide higher percentages of the essential amino acid methionine in plants, while retaining the anti-pathogenic functionality of simultaneously enhance both resistance to plant pathogens, and methionine content in plants.
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Best Local S
Matches 38
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                            25-MAR-2003
11-FEB-1993
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                                                                                                      AAR26860;
                                                                                                                                                     AAR26860
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                improving plant feed formulations
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l Similarity 84.4%;
38; Conservative
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(first entry)
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Pred. No. 2.1e-17;
4; Mismatches 3;
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e; feed formulation;
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anti-pathogenic.
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RESULT 15
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Best Local S
Matches 39
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               The peptides given in AAR26850-61 have been shown to have potent antimicrobial activity against many common pathogens. They are particularly effective against fungal pathogens. These peptides can be effectively applied to plants afflicted by susceptible microorganisms or they can be incorporated systematically into the tissues of a treated plant so that the infecting microbes are exposed to the pathogens in the course of the infection. This may be done by incorporating the peptides into a non-phytotoxic vehicle adapted for systematic administration to the susceptible plants or by isolating the genes encoding them, inserting the genes into an appropriate expression cassette and using this to insert the gene of interest into the genome of the plant.

(Updated on 25-MAR-2003 to correct PN field.)
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  WPI;
                                                                                                                                                                               Alpha-hordothionin; lysine; fungus resistance; disease : crop protection; transgenic
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Treatment of bacterial and fungal infections synthetic proteins e.g. adrenocorticotropic lpoly-L-arginine, mastoparan, kassinin etc.
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-MAR-1991;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               04-MAR-1992;
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                                                                                                                                                                                                                                                                                                                                                                                                                      AAR60048;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           Disclosure; Table 4;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     09-SEP-1992.
                                                                                                                             Hordeum vulgare
                                                                                                                                                                                                                                                                                        Alpha-hordothionin derivative.
                                                                                                                                                                                                                                                                                                                                          25-MAR-2003
16-FEB-1995
                                                                                                                                                                                                                                                                                                                                                                                                                                                                            AAR60048
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Duvick J,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Antimicrobial expression cas
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          (PION-)
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       Similarity
                                                                                                                                                                                                                                                                                                                                                                                                                                                                        standard; protein; 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     KSCCRSTLGRNCYNLCRVRGAQKLCAGVCRCKLTSSGKCPTGFPK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      KSCCRSTLGRNCYNLCRVRGAQKLCANACRCKLTSGLKCPSSFPK 45
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Rood T;
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     45
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            86.9%; ilarity 86.7%; Conservative
                                                                                                                                                                                                                                                                                                                                      (updated)
(first entry)
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                                                                                                                                                                               lysine; antifungal; antimicrobial; disease resistance; crop improvement; ansgenic plant.
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Pred. No. 9e-17;
L; Mismatches 5;
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Best Local S
Matches 39
                                                                                                                                                                 Lysine-rich alpha-hordothionin has powerful antifungal properties Derivatives of alpha-hordothionin (given in AAR60046-53), made by position-specific substitution with lysine residues, provide improved resistance to fungal pathogens when expressed in transgenic dicot or monocot plants. Substitution of amino acids 5, 12, 17, 19 and 30 of the wild-type sequence (AAR60045) with Lys, and of Cys-29 with Thr, gave the protein given in
                                                                                                                        Sequence
                                                                                                                                                                                                                                                                                Derivatives of alpha hordothionin - hretain antifungal activity of parent
                                                                                                                                                                                                                                                            Disclosure; Page 17-18; 7pp;
                                                                                                                                                                                                                                                                                                                                          Beach
                                                                                                                                                                                                                                                                                                                    WPI; 1994-249225/30.
                                                                                                                                                                                                                                                                                                                                                                                      13-JAN-1993;
                                                                                                                                                                                                                                                                                                                                                                                                            12-JAN-1994;
                                                                                                                                                           AR60048
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ilarity 86.7%;
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